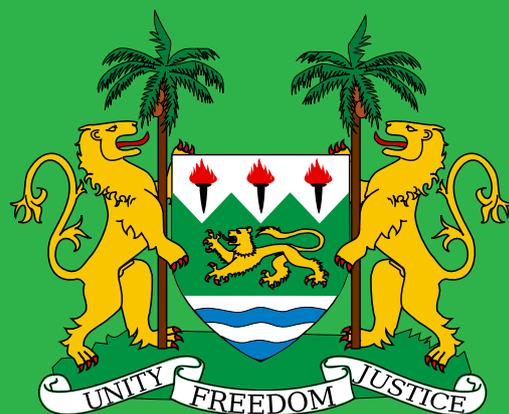


# SIERRA LEONE

## National Multi-Sectoral Strategy to Prevent and Control Anaemia 2018–2025

January 2018





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Strategy to Prevent and  
Control Anaemia**

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**PHOTO:** Direct Relief, 2013 Sierra Leone Partner Visit. Wellbody Alliance, Kono District.

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Thank you all for the tremendous individual and collective contributions.



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**ACRONYMS AND ABBREVIATIONS**

ABC	agribusiness centre
ANC	antenatal care
ARV	antiretroviral
ART	antiretroviral therapy
CBH	community-based health
CHW	community health worker
CLTS	community-led total sanitation
CU1	children under one year of age
CU5	children under five years of age
DMHT	district health management team
DOTS	directly observed treatment system
EPI	Expanded Programme on Immunisations
FBO	farmer-based organisation
FP	family planning
GBV	gender-based violence
HIV/AIDS	human immunodeficiency virus and/or acquired immunodeficiency syndrome
HW	health worker
HKI	Helen Keller International
HH	household
HMIS	Health Management Information System
IDA	iron-deficiency anaemia
IFA	Iron-folic acid
IMCI	integrated management of childhood illness
IPC	infection, prevention and control
IPT	intermittent preventive treatment (of malaria)
IPTi	intermittent preventive treatment (of malaria) in infancy
IPTp	intermittent preventive treatment (of malaria) in pregnancy
IYCF	infant and young child feeding
LQAS	lot-quality assurance sampling
LLIN	long-lasting insecticide-treated net
M&E	monitoring and evaluation
MCHW	Maternal and Child Health Week
MDA	mass drug administration
MICS	Multiple Indicator Cluster Survey
MIS	Malaria Indicator Survey
MoHS	Ministry of Health and Sanitation
MSG	mother support group

NAWG	National Anaemia Working Group
NCD	non-communicable disease
NGO	nongovernmental organisation
NTDP	Neglected Tropical Disease Programme
ODF	open defecation-free
PHU	peripheral health unit
PLW	pregnant and lactating women
PMTCT	prevention of mother-to-child transmission
PW	pregnant women
RBC	red blood cell
RDT	rapid diagnostic test
RMNCAH	reproductive, maternal, neonatal, child and adolescent health
SAC	school-aged children
SBC	social behaviour change
SCD	sickle cell disease
SMC	school management committee
SOPs	standard operating procedures
SP	sulfadoxine-pyrimethamine
SPRING	Strengthening Partnerships, Results, and Innovations in Nutrition Globally
STH	soil-transmitted helminth
TB	tuberculosis
UN	United Nations
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VAD	vitamin A deficiency
VAS	vitamin A supplementation
WASH	water, sanitation, and hygiene
WHO	World Health Organization
WRA	women of reproductive age
6MlyCP	six-monthly contact point

## EXECUTIVE SUMMARY

**Introduction:** Describes the impact and prevalence of, and factors contributing to, anaemia in Sierra Leone. Provides an overview of current anaemia-related interventions and policies.

**Targets:** Provides baseline and target prevalence for the strategy's impact indicators, anaemia, malaria, soil-transmitted helminthiasis, and schistosomiasis.

**Approach:** Identifies the target groups of intervention as well as delivery platforms and channels.

### Strategy Objectives:

- Improve Prevention and Control of Infections
- Improve Prevention of Chronic Infections and Specialised Health Conditions
- Improve Reproductive Health and Delivery Care
- Improve Micronutrient Intake and Diet Quality
- Improve Education of Girls and Women
- Improve Integrated Platforms to Deliver Anaemia Interventions

Under each objective, there are several strategies. Each strategy includes:

1. **Rationale:** why the strategy is important for addressing anaemia
2. **Approach:** how to implement the strategy
3. **Priority Actions:** actions to strengthen or modify current efforts

### Monitoring, Evaluation, and Learning:

Provides a framework and list of indicators to track, including progress in implementing each intervention's priority actions, and monitoring progress in meeting higher-level targets. Also suggests priority implementation research activities.

**Multi-Sectoral Implementation:** Identifies national, district, and local agencies to engage in anaemia strategy implementation, and provides guidance for developing working partnerships and collaborations to execute the strategy.

**Communication and Advocacy:** Provides guidance for developing a communication plan to engage communities, households, and individuals in behaviours to prevent anaemia, and to encourage national- and district-level actors to advocate for actions that support anaemia prevention and control.

## INTRODUCTION

### Sierra Leone's Anaemia Prevalence is among the Highest in the World

The World Health Organization (WHO) classifies anaemia as a severe public health problem when the prevalence is 40 percent or higher (WHO 2011a). West/Central Africa has the highest prevalence of anaemia across populations, and in Sierra Leone, anaemia is classified as a severe public health problem (Stevens et al. 2013; MoHS 2015) (Table 1).

### Anaemia Causes Poor Maternal and Child Health Outcomes

Anaemia is a condition characterised by a deficiency of haemoglobin in the blood. It is associated with negative health consequences, including maternal, infant, and child mortality;

diminished cognitive function; and decreased work capacity (WHO 2001). In addition, it has been estimated that, in the absence of adequate policy and programme action, Sierra Leone's agricultural productivity losses associated with anaemia in the female labour force would exceed US\$94 million over five years (Aguayo et al. 2003). Addressing anaemia is critical to reducing high maternal, infant, and child mortality rates and prevalence of low birthweight in Sierra Leone, and will improve both health and economic development.

**Table 1. Anaemia Prevalence\***

Population Group	Global (%)	West and Central Africa (%)	Sierra Leone (%)
Children under five years of age (CU5)	43	71	76
Pregnant women (PW)	38	56	70
Women of reproductive age (not pregnant) (WRA)	29	48	45
*Based on a haemoglobin level of <11g/dL for CU5 and PW and <12g/dL for non-pregnant WRA. Source: Global and West and Central Africa (Stevens et al. 2013); Sierra Leone Micronutrient Survey 2013 (MoHS 2015).			

## STRATEGY FORMULATION

Recognizing the high prevalence of anaemia, in 2014 the Sierra Leone Ministry of Health and Sanitation (MoHS) requested the United States Agency for International Development's (USAID's) Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) project to conduct a landscape analysis to describe the anaemia situation in Sierra Leone. *A Landscape Analysis of Anaemia and Anaemia Programming in Sierra Leone* compiled much of the data included in this strategy. One of the important surveys included in this analysis was the Sierra Leone National Micronutrient Survey, which provides a comprehensive picture of anaemia and micronutrient deficiencies in Sierra Leone. Further information on the prevalence and causes of anaemia, the status of anaemia-related interventions, and existing policies can be found in that report (SPRING 2015).

In 2016, Sierra Leone created the National Anaemia Working Group (NAWG), a subgroup of the Scaling Up Nutrition (SUN)

Technical Working Group chaired by the Director of Food and Nutrition of the MoHS. The NAWG includes members from health, education, agriculture, trade, WASH (water, sanitation, and hygiene), gender, and other technical areas, who represent government, United Nations agencies, donors, business, and civil society (Terms of Reference in Box 1). The NAWG developed this National Anaemia Prevention and Control Strategy by drawing on information from the landscape analysis report and other key reports and publications. It also conducted key informant interviews with ministry, development partners, and nongovernmental organisations (NGOs) to determine how to link the strategy with current implementation plans, obtain a more in-depth understanding of the barriers to anaemia-related interventions, and identify lessons learnt from existing and potential interventions. Finally, more than 80 stakeholders across sectors attended a strategy review workshop in 2017 to provide inputs into the strategy.

### Box 1. National Anaemia Working Group Terms of Reference

The NAWG is a multi-sectoral technical working group that spearheads and champions anaemia-related activities and ensures anaemia's strategic importance within various national and sectoral agendas. Its key work areas are to:

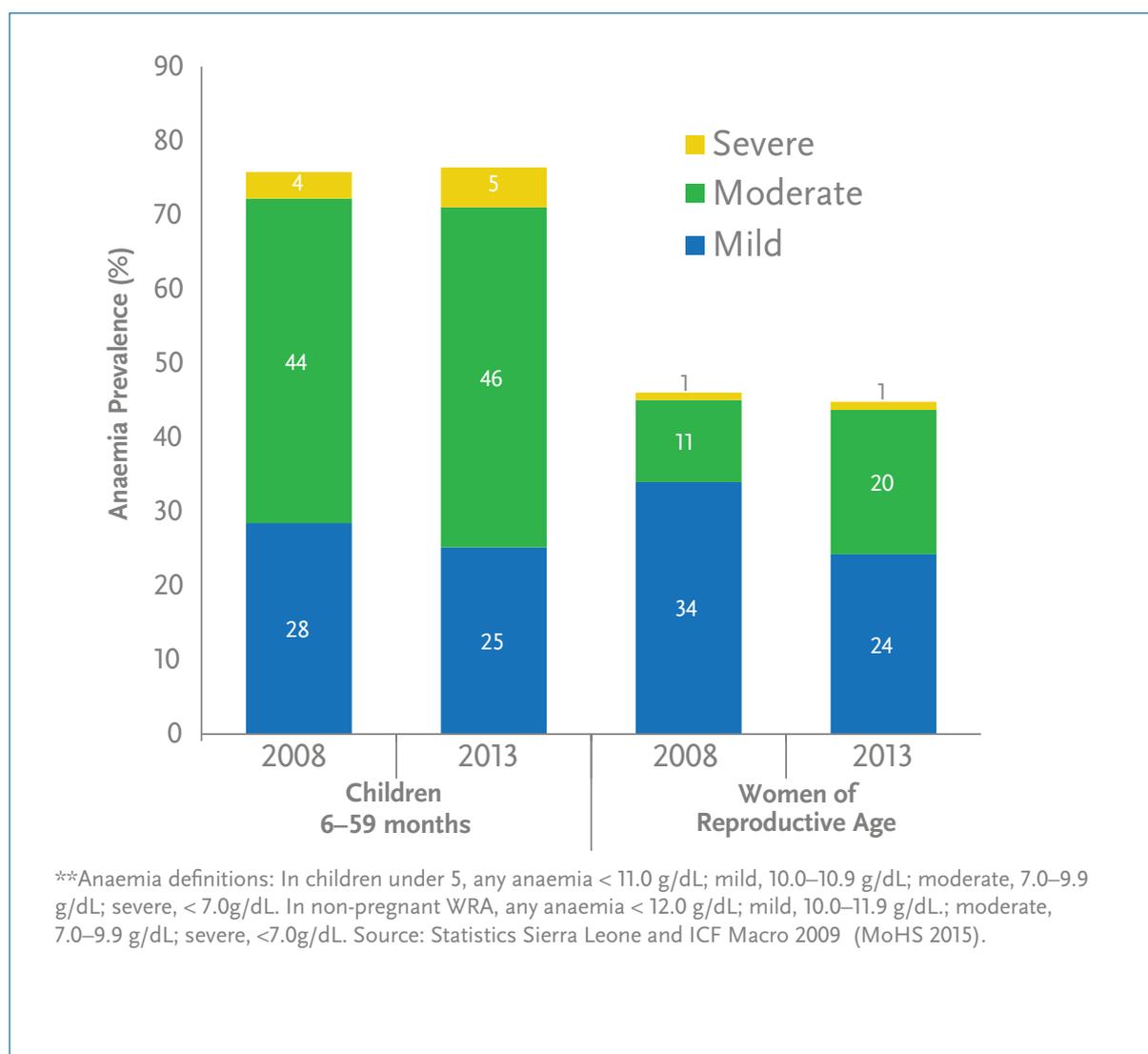
- Propose actions at the country level to overcome major challenges to implementation and monitoring of anaemia-related interventions.
- Catalyse actors to update and develop policy actions for proposed key interventions.
- Determine international institutional arrangements and the roles of various partners in policy updates and implementation of key interventions.
- Harmonise multi-sectoral arrangements with the various roles of the different partners. and
- Track and monitor progress of anaemia-related interventions.

## SIERRA LEONE ANAEMIA SITUATION<sup>1</sup>

Very few countries are making sufficient progress to meet the World Health Assembly's target of halving anaemia in WRA by 2025 (Stevens et al. 2013; International Food Policy Research Institute 2016; WHO 2014a). Between 2008 and 2013, there was no improvement in anaemia rates in Sierra Leone (Figure 1).

As of 2013, anaemia prevalence in Sierra Leone was highest among children in rural areas, poorer households and less prevalent in the Western Area. Prevalence among women did not vary significantly across age, residence, region, education, or household wealth (Wirth et al. 2016).

Figure 1. Anaemia\*\* Prevalence in Children Ages 6–59 Months and Women of Reproductive Age by Severity



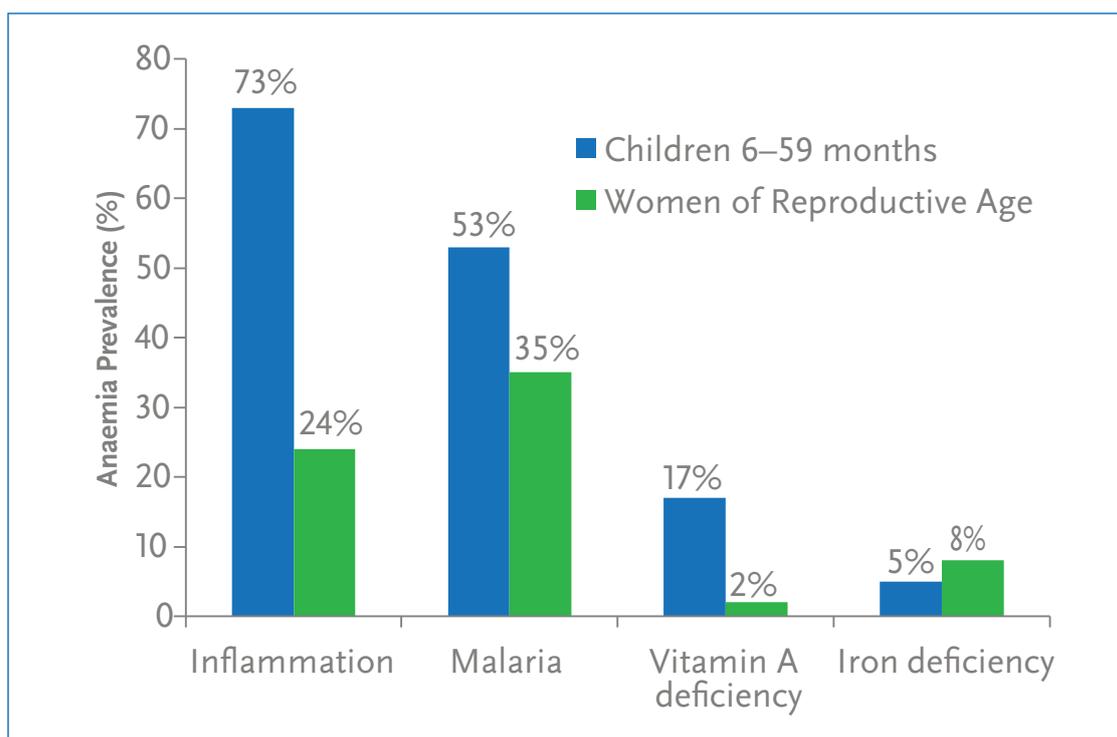
<sup>1</sup> Several sources of data are used to ensure the most comprehensive information in describing the anaemia situation. The prevalence of anaemia from 2008 was derived from the 2008 Demographic and Health Survey (DHS). Data used to characterise the 2013 prevalence of anaemia and the factors contributing to anaemia were mostly derived from the 2013 National Micronutrient Survey (MoHS 2015). In addition, data from the Neglected Tropical Disease Programme were used (Bah et al. 2016b; Bah et al. 2016a). The state of key anaemia interventions was derived from the 2013 DHS, The Ministry of Education, Science, and Technology Education Sector plan 2014–2018 (Ministry of Education, Science, and Technology 2013), and the Sierra Leone National AIDS Response Progress Report 2015 (UNAIDS 2015a). In addition, data from post-event coverage surveys (Hodges et al. 2013; Jalloh et al. 2016), *the State of Food Security in Sierra Leone 2015: Comprehensive Food Security and Vulnerability Analysis* (WFP, Government of Sierra Leone, and FAO 2016), and other non-routine information sources were used.

### Factors Contributing to Anaemia

Anaemia is caused by multiple factors. Infection and inflammation have been identified as the main factors in Sierra Leone (Figure 2). Additionally, genetics,

poor dietary diversity, and poor absorption of micronutrients play an important role. Contrary to many settings, iron deficiency appears to have a limited role in causing anaemia in the Sierra Leone context.

**Figure 2. Prevalence of Anaemia Risk Factors in Children Ages 6–59 Months and Women of Reproductive Age Based on Data from the 2013 National Micronutrient Survey<sup>2</sup> (Source: MoHS 2015)**



The focus of this strategy is on the immediate, underlying, and basic causes of anaemia in the local context. The Global Anaemia Causal Pathways (Figure 3) is rooted in the basic building blocks of food, health, and care, as per the United Nations Children’s Fund (UNICEF) conceptual framework for malnutrition.

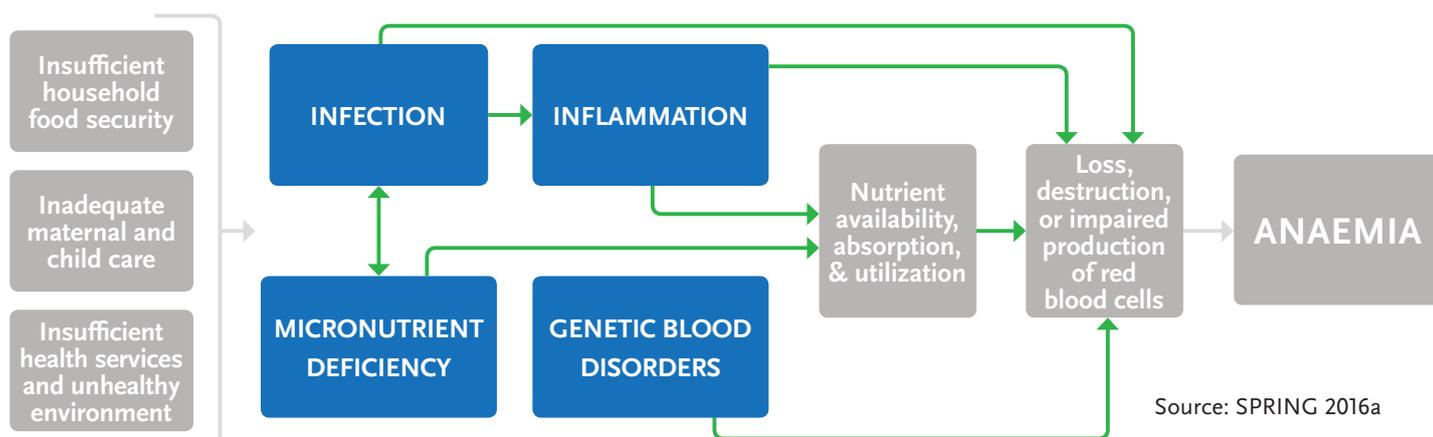
### Infections

In Sierra Leone, the prevalence of malaria is high; 35 percent among WRA and 53 percent

among CU5 (Wirth et al. 2016) (Figure 2). Frequent episodes of diarrhoea and acute respiratory tract infections are reported in all surveys, including the Sierra Leone Micronutrient Survey, 2013. In 2013, 30 percent of caregivers reported that their preschool-aged child had experienced diarrhoea in the past two weeks (MoHS 2015). Soil-transmitted helminths (STH) and schistosomiasis also likely contribute to anaemia, with a 15 percent overall prevalence of STH and 20 percent prevalence of schistosomiasis among

<sup>2</sup> Prevalence of anaemia in children is 76% (haemoglobin <11.0 d/L), and in women it is 45% (haemoglobin <12.0 d/L. Prevalence of iron-deficiency anaemia in children is 4%; and in women it is 6%. Inflammation is defined as C-reactive protein >5 mg/L and/or alpha-1-glycoprotein >1 g/L. Malaria defined as current or recent based on rapid diagnostic test. Vitamin A deficiency is defined as retinol binding protein <0.7 µg/L, adjusted for inflammation. Iron deficiency is defined as ferritin <12 µg/L in children and 15< µg/L in women, adjusted for inflammation. Iron deficiency anaemia is defined as having both anaemia and iron deficiency.

Figure 3. Global Anaemia Causal Pathways. Adapted from the BRINDA Project.



school-aged children (SAC) in the seven districts with endemic schistosomiasis (Bah et al. 2016b; Bah et al. 2016a).<sup>3</sup>

### Inflammation

Inflammation as a result of infections (e.g. malaria, helminths, diarrhoea, and respiratory infections) is high; 24 percent of women and 73 percent of children ages 6–59 months have elevated levels of inflammation (Wirth et al. 2016) (Figure 2).

Chronic infections also contribute to inflammation. While the prevalence of HIV is low, at 1.5 percent of adults (Statistics Sierra Leone and ICF International 2014), Sierra Leone is in the top 30 countries for incidence of tuberculosis (TB) (WHO 2016a). As of 2009, 14 percent of people living with HIV in Freetown were co-infected with TB (UNAIDS 2015b). It is well documented that TB causes anaemia, which can be resolved during or after treatment in a majority of cases (Lee et al. 2006).

### Micronutrient Deficiencies

Dietary diversity in Sierra Leone is poor, with only 35 percent of children ages 6–23 months

receiving a minimum dietary diversity (MoHS 2015). However, iron deficiency is not a major contributor to anaemia in Sierra Leone (Figure 3). After using a correction factor to adjust for inflammation, the prevalence of iron-deficiency anaemia (IDA) and iron deficiency are low in women (6 percent and 8 percent, respectively) and children (4 percent and 5 percent, respectively) (MoHS 2015). On the other hand, vitamin A deficiency (VAD) is higher among CU5 (17 percent) but not among WRA (2 percent) (Figure 2) (MoHS 2015). By applying a linear regression approach to adjust for inflammation, iron deficiency is 11 percent, IDA is 9 percent, and VAD is 6 percent in children; in WRA, iron deficiency is 18 percent, IDA is 12 percent, and VAD is 1 percent. Children with malaria had a higher prevalence of VAD (Wirth et al. 2016).

### Sickle Cell Disease

Sickle cell disease (SCD) is a group of conditions affecting the structure of haemoglobin and resulting in reduced lifespan, flexibility, and production of red blood cell (RBCs), which contributes to anaemia. Individuals without SCD have inherited the haemoglobin “A” gene from

<sup>3</sup> However, the species of hookworm prevalent in Sierra Leone is not as effective at sucking blood as species more common in colder, less humid climates, making hookworm less of a factor in the country (Foy and Kondi 1961).

each parent, whereas those with sickle cell trait (carriers) have inherited the haemoglobin “A” gene from one parent and an “S” from the other parent (HbAS). Sickle cell disease refers to persons with either sickle cell anaemia (HbSS) (inherited an “S” gene from each parent), HbSC (when a “S” is inherited from one parent and “C” from the other) or HbS  $\beta$ thalassaemia (when a “S” is inherited from one parent and “ $\beta$ thalassaemia” from the other). HbSC and HbS $\beta$ thal are less severe compared with HbSS. (Rees et al, 2010). These haemoglobin genes have evolved over time, because those with carrier forms are at a reduced risk of severe malaria and death in childhood (Williams and Obaro, 2011).

In Sierra Leone the carrier rate (HbAS) has been estimated to be 22 percent (Wurie et al 1996). In an analysis of a subset of Sierra Leone Micronutrient Survey participants, the prevalence of anaemia was significantly higher in CU5 and WRA with HbSS, but not in those with HbAS or HbSC compared to those with

HbAA or HbAC (unpublished data).<sup>4</sup> The prevalence of HbSS in the WRA population was significantly lower than in the CU5 population, illustrating the high mortality rate associated with this condition in the current context. However, further research, starting with neonatal screening to confirm prevalence rates for the various combinations of SCD, is recommended.<sup>5</sup>

### State of Key Anaemia-Related Interventions

Effective multi-sectoral integration requires each relevant sector to contribute to anaemia prevention and control efforts. Key sectors and interventions for addressing anaemia in Sierra Leone are shown in Figure 4. Demographic and Health Survey data on the current coverage of interventions addressing basic, underlying, and immediate causes of anaemia are shown in Figure 5. Currently, there are no data on the coverage of interventions to address genetic blood disorders in Sierra Leone.

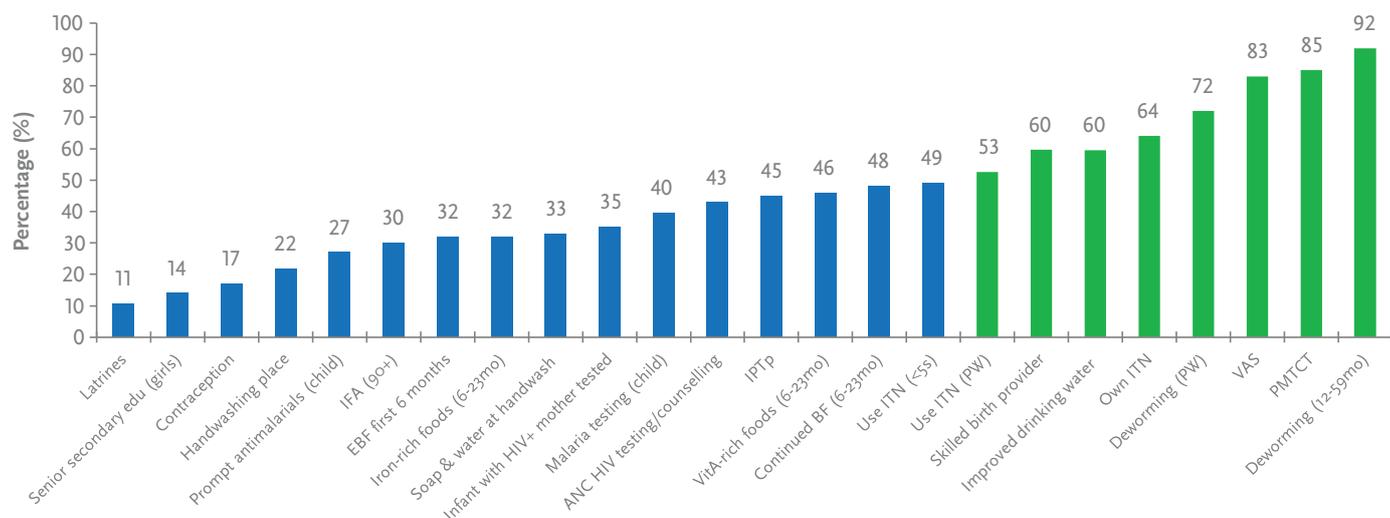
<sup>4</sup> It is important to note sample size is small and some randomly collected samples may have been inadequate due to increased hemolysis (due to HbSS, HbSC and HbS $\beta$ thal) during collection, transit prior to storage or degradation during the prolonged storage.

<sup>5</sup> It should be noted that persons with HbSS should avoid iron supplementation as iron overload is a long-term risk due to poor iron regulation. Multiple blood transfusions will also contribute to iron overload and should only be considered when the haemoglobin is <5gm/dL or in special circumstances. Blood must be cross matched (not just typed) before transfusion as reactions to mismatched blood will increase in frequency and severity

Figure 4. Anaemia Interventions, by Sector

	<b>AGRICULTURE</b>	Increased production and consumption of nutrient-rich foods; biofortification; food fortification; promotion of food safety
	<b>DISEASE CONTROL</b>	Prevention, control, and management of malaria; deworming for schistosomiasis and soil-transmitted helminths; indoor residual spraying; intermittent preventive treatment during pregnancy; long-lasting insecticide treated bed nets
	<b>EDUCATION</b>	Health, hygiene, and nutrition education in schools; deworming for school-age children; women's and girls' education
	<b>GENETICS</b>	Screening, counselling, and management of genetic blood disorders related to anaemia
	<b>NUTRITION</b>	Dietary diversification; dietary modification; micronutrient supplementation; high-dose vitamin A supplementation for children; industrial fortification; maternal, adolescent, infant, and young child nutrition; iron-folic acid supplementation in pregnancy
	<b>REPRODUCTIVE HEALTH</b>	Appropriate care during pregnancy, delivery, and postnatal period; delayed cord clamping; birth spacing; reducing adolescent pregnancy; postpartum haemorrhage
	<b>WATER, SANITATION, AND HYGIENE</b>	Use of appropriate and safe sanitation facilities; use of safely managed drinking water sources; water treatment; handwashing; clean play spaces
	<b>CHRONIC DISEASE</b>	HIV; TB; HIV and TB prevention and treatment

Figure 5. Coverage of Anaemia-Related Interventions in 2013



**DEFINITIONS:** Households (HHs) having access to improved unshared **latrines** (flush/pour to piped sewer system, flush/pour to septic tank or pit/ventilated improved pit latrine, pit latrine with slab, composting toilet); Girls having access to **senior secondary education**; Use of any **contraceptive** by married WRA; HHs where **handwashing place** is observed; Prompt **antimalarials** indicates children with malaria-related fever taking artemisinin-based combination therapy within 24 hours; Iron-folic acid (IFA) tablets for 90 days or more (**IFA 90+**) in last pregnancy; Women who **exclusively breastfeed (EBF)** for the first six months; Children ages 6–23 months consuming **iron-rich foods** (meat, fish, poultry, or eggs) in past 24 hours; **Soap and water** at handwashing place among HHs observed; **HIV testing of infants** born to HIV-positive mothers within two months of birth; **Malaria testing** among CU5 with fever; PW receiving **HIV testing, results, and counselling during antenatal care (ANC)**; Women taking 2+ doses of sulfadoxine-pyrimethamine/Fansidar (**intermittent preventive treatment of malaria during pregnancy [IPTp]**) and receiving at least one dose during ANC visit; Children ages 6–23 months consuming **vitamin A-rich** foods in past 24 hours (includes the iron-rich foods and fruits and vegetables rich in vitamin A); Mothers report **continued breastfeeding (BF)** until child is 2 years of age; **Children under the age of five (CU5) sleeping under a treated bed net (ITN)** last night; Among **PW ages 15–49, sleeping under an insecticide-treated bed net (ITN)** last night; Last child **delivered by a skilled birth provider**; **Improved drinking water** includes HHs having water piped into dwelling/yard/plot, public tap, tube/protected well or borehole, protected spring, rain water, or bottled water (note: this last item would not be considered improved by the WHO/UNICEF, but is considered improved by DHS); HHs **owning at least one insecticide-treated bed net (ITN)**; **PW took deworming** medication during last pregnancy; Children ages 6–59 months given **vitamin A supplementation (VAS)** in past six months; PW with HIV who receive antiretroviral therapy to **prevent mother-to-child transmission (PMTCT)**; **Deworming** children ages 12–59 months, for soil transmitted helminths (STH) (Jalloh U.2016; Statistics Sierra Leone and ICF International 2014; UNAIDS 2015a; Ministry of Education, Science, and Technology 2013).

### Anaemia Policy Environment

Sierra Leone's Agenda for Prosperity 2013–2018 policy outlines critical strategies in health, nutrition, disease control, agriculture,

and water and sanitation to support Sierra Leone's development. Table 2 presents the national strategies, policies, and implementation plans that address causes of anaemia.

**Table 2: National Policies, Strategies, and Plans Relevant to the National Anaemia Strategy**

National Policy, Strategy, or Plan	Infection and Chronic Disease	Reproductive Health and Delivery Care	Micronutrients and Diet	Education
Food and Nutrition Security Policy 2012–2016 and Implementation Plan 2012–2016	X	X	X	
Health Sector Strategic Plan 2010–2015	X	X		
HIV/AIDS Prevention Strategy 2011–2015	X	X		
Leprosy and Tuberculosis Control Strategic Plan 2016–2020 and Operations Plan 2016–2020	X			
Malaria Control Policy and Strategic Plan 2016–2020	X			
Mother-to-Mother Support Groups: A Guidance Document	X	X	X	
National Community Health Workers Policy 2016–2020	X	X	X	
National Health Promotion Strategy 2017–2021	X	X	X	
Neglected Tropical Disease Master Plan 2016–2020	X			
Public Health Act of 1960	X			
Reproductive, Maternal, Newborn and Child Health Strategy 2017–2021	X	X	X	
Sustainable Agriculture Development Plan 2010–2030			X	
Government of Sierra Leone Education Sector Plan 2014–2018				X
Water and Sanitation Policy of 2010	X			

For further information on the national policies, strategies, and plans, please see Annex 2.

## STRATEGY TARGETS

Sierra Leone has prioritised reducing anaemia in all populations, with a special focus on those most at risk, namely CU5, WRA (including adolescent girls), and PW.

Targets for anaemia reduction and the main risk factors are provided in Table 3. Target levels take into account the fact that anaemia prevalence was stagnant from 2008–2013.

**Table 3: Key Targets for Anaemia Reduction by 2025**

Impact	Population Group	Baseline	Data Source	Target	Data Source
Any anaemia < 11.0 g/dL < 12.0 g/DI	Ages 6–59 months	76%	MoHS 2015	60%	National household survey
	WRA	45%		35%	
Severe anaemia < 7.0 g/dL < 8.0 g/DI	Ages 6–59 months	5%		4%	
	WRA	1%		0.75%	
Moderate anaemia 7.0–9.9 g/dL 8.0–10.9 g/dL	Ages 6–59 months	46%		37%	
	WRA	20%		16%	
Mild anaemia 10–10.9 g/dL 11–11.9 g/dL	Ages 6–59 months	25%		20%	
	WRA	24%		19%	
Malaria*	Ages 6–59 months	53%	MoHS 2016b	20%	National household survey
	WRA	35%		28%	
Soil-transmitted helminths	SAC	18% (average among sites)	Bah et al. 2016a	<20% in each individual site	National Neglected Tropical Disease Program (NTDP) school survey
Schistosomiasis in the seven endemic districts		20%	Bah et al. 2016b	<10%	

\*The baseline malaria prevalence figures are slightly different from the Sierra Leone Malaria Control Strategy Plan 2016–2020 because the data in this strategy are derived from the National Micronutrient Survey, whereas the Sierra Leone Malaria Control Strategy Plan 2016–2020 uses data from the Malaria Indicator Survey. The Sierra Leone Malaria Control Strategy Plan target for children is 26% by 2020; a lower prevalence has been selected in this strategy because it runs until 2025. There is no target for WRA in the Sierra Leone Malaria Control Strategy Plan.

## OBJECTIVES, STRATEGIES, AND ACTIONS

The strategy is divided into six objectives, selected to address the basic, underlying, and immediate causes of anaemia:

- **Objective 1: Improve Prevention and Control of Infections**
- **Objective 2: Improve Prevention of Chronic Infections and Specialised Health Conditions**
- **Objective 3: Improve Reproductive Health and Delivery Care**
- **Objective 4: Improve Micronutrient Intake and Diet Quality**
- **Objective 5: Improve Education of Girls and Women**
- **Objective 6: Improve Integrated Platforms to Deliver Anaemia Interventions**

Each objective is comprised of a rationale and an approach, as well as a table of interventions and associated priority actions. We also provide a summary of current interventions related to each strategy. Priority actions included under each strategy are intended to be complementary to existing interventions and should be integrated into existing programmes or activities in Sierra Leone. As a reminder, this document is a multi-sectoral strategy to prevent and control anaemia, not a programme plan.

The primary population groups to receive interventions are those most affected by anaemia. There are also population groups (e.g. mothers-in-law, husbands, other family members) who can support them in adopting positive practices. As such, interventions will also be directed towards these influencers.

## DELIVERY PLATFORMS

### Agricultural Platforms

Sierra Leone's agriculture system at the community level is comprised of farmer-based organisations (FBOs), agribusiness centres (ABCs), private sector stakeholders (e.g. input suppliers, processors, and traders) and associations, such as the Sierra Leone Chamber for Agribusiness Development and the Sierra Leone Women Farmers Forum. Two to three FBOs, comprised of male and female farmers, come together to operate an ABC for the purpose of starting an agribusiness. The government's extension service provides new technology dissemination and training, and the Women in Agriculture unit has a nutritionist who assists with programmes such as vegetable gardening. Agricultural information is also passed on to farmers through radio broadcasts.

### Antenatal Care

Antenatal, intra- and postpartum care are key opportunities for health care delivery for pregnant, postpartum, and lactating women and their newborns. The new global recommendations for antenatal care (ANC) include iron-folic acid (IFA) supplementation given as early as possible in pregnancy, deworming after the first trimester, intermittent preventive treatment of malaria in pregnancy (IPTp) starting during the second trimester with at least three doses given at least one month apart, and counselling on healthy diet and reasonable workload. While the government in Sierra Leone currently recommends four ANC visits, efforts to adopt the new global recommendation of eight ANC contacts (WHO 2016c) will increase coverage and effectiveness of interventions to prevent anaemia, if commodities are available, supply chains work, and PW take recommended medications. The Free Health Care Initiative, introduced by the government in 2010, provides free health care for all PW, but currently only 45 percent of PW attend ANC

in their first trimester (Statistics Sierra Leone and ICF International 2014).

### Biannual Maternal and Child Health Weeks

The MoHS, UNICEF, Helen Keller International (HKI), and other partners conduct biannual Maternal and Child Health Weeks (MCHWs). Activities usually include catch-up routine immunisations through the Expanded Programme on Immunizations (EPI), VAS to children ages 6–59 months, screening of children ages 6–59 months for malnutrition, and deworming for children ages 12–59 months. Occasionally, there has been provision of a long-lasting insecticide-treated nets (LLINs), administering tetanus toxoid immunisations to WRA, and referral for ANC including voluntary counselling and testing for HIV and AIDS. Maternal and Child Health Weeks have been a major contributor to reducing maternal and child undernutrition, morbidity, and mortality (Helen Keller International 2011). The mass VAS and deworming during MCHWs will gradually be phased out from 2017–2021 and replaced by access to VAS and deworming at a routine six-monthly point of contact, together with improved social and behaviour change communication of infant and young child feeding (IYCF) and quality, confidential family planning (FP) counselling and provision of long term commodities especially hormonal implants as appropriate.

### Community-Based Health

Community-Based health (CBH) programmes provide basic health care at the community level through community health workers (CHWs). Community health workers in Sierra Leone are trained using three modules: community health basic, integrated community case management “plus”, and reproductive, maternal, neonatal, child and adolescent health (RMNCAH). In addition, specific CHWs provide support for

care and management of TB and HIV. The CHW programme aims to ensure equitable access to health services across the country, prioritises providing care for hard-to-reach populations, and encourages community engagement and ownership.

### Integrated Management of Childhood Illness

The Integrated Management of Childhood Illness (IMCI) approach emphasises the well-being of the whole child, including both prevention and treatment components that involve households, communities, and health facilities. In household and community settings, prevention and management efforts are supported by promoting appropriate care-seeking, improved capacity of caregivers on care and feeding, improved nutrition and preventive care, and implementation of prescribed care (WHO 2016b; WHO 2014c). In the health facility setting, efforts are supported by ensuring accurate assessment and classification of a sick child, appropriate caregiver counselling and follow-up, and treatment as needed with vitamin A, zinc, fluids, antimalarials, and antiretrovirals (WHO 2016b; WHO 2014c).

### Markets

These are an important points of contact for individuals who may be unable or unwilling to attend more traditional health centres (Marie Stopes International and USAID n.d.). Providing health outreach at markets through CHWs or mobile health facility workers capitalises on convenience to deliver health messages and care. Improved nutrition-sensitive agricultural practices are also delivered in markets, targeting traders and the public.

### Mother Support Groups

Mother support groups (MSGs) are groups of 10–15 members, including PW, lactating mothers, teenage mothers, elderly experienced women, CHWs, and men. They are led by a lead mother trained in maternal, infant, and young child feeding and hygiene

practices, and should facilitate a connection between households and the local peripheral health unit (PHU). The MSGs should help their community take ownership of the health and well-being of mothers and children, including involvement in nutrition-sensitive agriculture and other activities (MoHS 2016a). Mother support groups were established by local implementing partners with support from UNICEF, but MoHS currently have not reached nationwide coverage and need to accelerate efforts to engage men and elderly women in their activities, particularly around social behaviour change (SBC).

### Peripheral Health Units

There are of three tiers of PHUs: community health centres, community health posts, and maternal and child health posts. Community health centres have the highest capacity to provide care, while maternal and child health posts have the most basic capacity. For patients needing care beyond what is available at the community health centre level, there are national and district referral hospitals. The Free Health Care initiative was launched in 2010 to prioritise free access to health care for PLW and CU5 in Sierra Leone (Witter 2016). This initiative is meant to decrease maternal and child mortality and increase the use of primary health care.

### Health Training Institutions

Health training institutions are a key delivery platform for reaching health care providers. The College of Medicine and Allied Health Services trains doctors and pharmacy technicians. The University of Sierra Leone provides postgraduate diplomas in public health. The University of N'jala trains nutritionists, community health officers and assistants, environmental health officers, public health practitioners, and multiple cadres of agricultural workers. The Ernest Bai Koroma University offers public health and nursing courses at the Makeni campus. Midwives are trained at University of Sierra Leone and Makeni. Laboratory technicians

are trained at the Eastern Polytechnic. State Registered Nurses and State Enrolled Community Health Nurses are trained at both government and faith-based institutions. Maternal and child health aides are trained locally in all districts.

Regular and frequent updating of pre-service training curricula should be routine in all institutions and for all trainees. In-service training to update health and agricultural workers in the field is expensive but necessary, as evidence-based protocols change.

### Schools

Schools are an effective delivery platform to reach children ages 6–12 years with both health messages and interventions such as mass drug administration (MDA). In addition, health education can be provided as part of the school curriculum. Use of this platform has benefits beyond the child, as children share information taught in schools with their family and peers, which can influence the uptake of practices in families and communities. For instance, when WASH practices are taught in schools, children often share their newly acquired skills with their family and community and thus encourage

adoption of appropriate practices (UNICEF 2012). School-based deworming programs are a cost-effective means of delivering albendazole under the supervision of teachers. However, in the local context for praziquantel distribution, supervision is provided by the local health workers.

### Six-Month(ly) Contact Point

The six-month contact point initiative was piloted in 2011–12. When a child reaches six months of age, the mother and child visit their PHU for an integrated package of reproductive and child health interventions that includes routine “catch-up” immunisations, VAS, IYCF counselling, and quality, confidential FP counselling and services. Counselling caregivers on IYCF using this platform has been shown to improve exclusive breastfeeding rates (Hodges et al. 2015), while the integration of the FP component increased VAS and IYCF coverage and reduced gaps in contraceptive coverage (Kamara 2014; Hodges et al. 2015). In 2017, this initiative was expanded to include visits every subsequent six months; the six-monthly contact point (6MlyCP) is expected to reach full nationwide coverage by 2021.

## KEY ACTORS

Key actors that function within these delivery platforms will be responsible for delivering the

priority actions. Table 4 provides an overview of the key actors by delivery platform.

**Table 4. Anaemia Prevention Delivery Platform Key Actors**

Delivery Platform	Key Actors
Agriculture platforms	<ul style="list-style-type: none"> <li>• Agribusinesses and extension workers</li> <li>• Farmers, processors, traders, and consumers</li> <li>• Village savings group leaders</li> </ul>
ANC	<ul style="list-style-type: none"> <li>• Routine health providers</li> </ul>
MCHW	<ul style="list-style-type: none"> <li>• MCHW coordinators: MoHS, UN Agencies, district health management teams (DHMTs), NGOs</li> </ul>
CBH	<ul style="list-style-type: none"> <li>• CHWs</li> <li>• Community-led total sanitation leaders</li> </ul>
IMCI	<ul style="list-style-type: none"> <li>• Routine health providers</li> <li>• CHWs</li> </ul>
Markets	<ul style="list-style-type: none"> <li>• Traditional, religious, and other leaders</li> <li>• CHWs</li> <li>• Women's market leaders</li> </ul>
MSGs	<ul style="list-style-type: none"> <li>• Lead mothers</li> </ul>
PHUs	<ul style="list-style-type: none"> <li>• Routine health providers</li> </ul>
Pre-service training	<ul style="list-style-type: none"> <li>• Teachers, supervisors, and mentors</li> </ul>
Schools	<ul style="list-style-type: none"> <li>• Teachers, School Management Committees (SMC), and Community Teacher Associations (CTAs)</li> </ul>
6MlyCP	<ul style="list-style-type: none"> <li>• HWs and CHWs at PHUs</li> </ul>

### Objective 1: Improve Prevention and Control of Infections

#### Strategy 1.1: Parasitic Disease Control

##### 1.1.a Malaria Control

**Rationale.** Malaria can cause anaemia by destroying or decreasing the production of RBCs (Beutler 1996; WHO 2011a).

**Approach.** To improve the prevention and treatment of malaria, interventions should

include intermittent preventive treatment of malaria in pregnancy (IPTp); intermittent preventive treatment of malaria during infancy (IPTi); case management (appropriate testing for diagnosis and timely treatment); and vector control.

Sierra Leone updated its national malaria policy to align with WHO guidelines, providing IPTp preferably during ANC visits via the directly observed treatment

system (DOTS). Guidelines state that a full therapeutic course of antimalarial medicine should be given to all PW at monthly intervals, and at least three doses should be given during pregnancy, starting in the second trimester, regardless of whether the PW is infected with malaria (WHO 2012b). Sierra Leone is scaling up IPTi to be given at the same time as DTP2, DTP3/Penta 3, and measles immunisations through routine immunization at 10 weeks, 14 weeks, and 9 months, respectively.

The MoHS requires that all patients (including children) presenting with a fever be tested for malaria. Testing should be done using

microscopy, or rapid diagnostic tests (RDTs) where microscopy is not feasible, and those who test positive should be promptly treated. For children, diagnosis and management should be part of the IMCI approach that needs to be strengthened in country (see Objective 6 of this document).

In Sierra Leone, the government is distributing LLINs to all households every three years; one is provided for every two people in the household (MoHS 2015).

Box 2 provides a summary of current interventions related to anaemia reduction and Table 5 lists additional priority actions to be taken.

#### Box 2. Key Interventions from the National Malaria Control Plan 2016–2020

##### **Intervention: Provide intermittent preventive treatment of malaria in pregnancy (IPTp)**

1. Roll out updated guidelines, job aids, and data collection tools to reflect third dose of IPTp (sulfadoxine-pyrimethamine (SP)) after first trimester
2. Train and orient health workers on those updates for IPTp
3. Procure and distribute adequate SP for IPTp with ANC care, including potentially through traditional birth attendants
4. Mobilise communities for increased ANC attendance

##### **Intervention: Provide intermittent preventive treatment of malaria in infants (IPTi)**

1. Roll out updated guidelines, job aids, and data collection tools to reflect that IPTi should be co-administered with DTP2, DTP3/Penta 3, and measles immunisation to infants, for three total doses, through routine immunisation services
2. Train and orient health workers on those guidelines for IPTi
3. Procure and distribute adequate SP for IPTi via routine immunisation services

##### **Intervention: Promote effective case management**

1. Procure sufficient diagnostic supplies and equipment for all health facilities to provide, at a minimum, quality assured RDTs free of charge
2. Establish necessary measures (e.g. supervision, orientation, job aids, treatment algorithms, community case management) to facilitate health workers (HWs) at hospitals and PHUs as well as

- CHWs to promptly diagnose (microscopy or RDTs must be used on any patient suspected of malaria before treatment started) and treat malaria, including appropriate referral for severe malaria
3. Procure and implement other mechanisms (e.g. making available over-the-counter drugs, local manufacture, tax waivers, quality control) to ensure adequate stock of quality antimalarials to treat uncomplicated and complicated malaria for free to those who need them
4. Mobilise communities for malaria prevention and treatment services

##### **Intervention: Promote integrated vector management**

1. Procure and distribute LLINs to all parts of the country—every three years, free of charge, to all households; to all PW at first ANC visit; to children at completion of Penta 3 immunisation; and through IMCI, FP, and nutrition services such as VAS
2. Advocate and sensitise HHs on the benefits and proper use of LLINs in the prevention and control of malaria
3. Scale up indoor residual spraying and other environmental control measures (such as larval control measures) as appropriate, to complement LLIN distribution efforts
4. Sensitise communities on the management of malaria breeding areas (i.e. stagnant water points) to improve drainage systems and environmental cleanliness to reduce mosquito-human contact

Source: MoHS 2015

Table 5. Priority Actions to Strengthen or Modify Current Prevention and Control of Malaria

Intervention		Population Group	Delivery platform	Priority Actions
Intermittent Preventive Treatment of Malaria	IPTp (3+ doses after first trimester)	PW	ANC	<ol style="list-style-type: none"> <li>1. Ensure all country guidelines are updated to reflect the shift to 3+ doses of IPTp by DOTS.</li> <li>2. Conduct analysis to determine HW barriers to the revised guidelines and protocols of 3+ doses of IPTp by DOTS.</li> </ol>
	IPTi (3 doses at 10, 14 weeks, and 9 months)	Infants	6MlyCP, CBH, EPI, MSG	<ol style="list-style-type: none"> <li>1. Integrate IPTi into the “catch-up immunisation” component of the 6-monthly contact point.</li> </ol>
Case Management	Malaria testing and treatment	All ages	CBH, PHU	<ol style="list-style-type: none"> <li>1. Develop a functional quality assurance system for testing of malaria using RDTs.</li> <li>2. Obtain necessary drugs and other commodities including RDT kits for PHUs.</li> <li>3. Assess existing malaria testing and treatment training curricula and adapt for and train tutors in health training institutions.</li> </ol>
Vector Control	Distribute and promote use of LLINs	All ages	Schools, CBH	<ol style="list-style-type: none"> <li>1. Pilot school-based distribution of LLINs.</li> <li>2. Engage community networks in monitoring use of LLINs.</li> </ol>
	Environmental management	All ages	CBH	<ol style="list-style-type: none"> <li>1. Engage in community sensitisation to remove or cover standing water.</li> </ol>
<p><b>Cross-cutting:</b> Conduct landscape analysis to update, develop, and implement targeted SBC to 1) promote completion of artemisinin-based combination therapy treatment for malaria (see <b>Objective 6</b> of this document for promotion of treatment through IMCI); 2) engage communities in the promotion of LLINs; 3) educate communities on minimising malarial mosquito breeding areas, including spraying and hygiene; 4) support HWs to provide 3+ doses of IPTp by DOTS; 5) provide support for CHWs and MSGs in promoting family uptake of IPTi.</p>				

### 1.1.b Soil-Transmitted Helminths (STH) and Schistosomiasis Control

**Rationale.** Hookworms and schistosomiasis can lead to gastrointestinal or urinary blood loss, malabsorption, suppression of appetite, and gastro-intestinal or urinary inflammation, which can aggravate iron deficiency and anaemia.

**Approach.** To achieve and maintain hookworm and schistosomiasis control, interventions should include a combination of deworming, health and hygiene education, and provision of adequate sanitation. Appropriate mass deworming campaigns are determined by

the prevalence of infection. When prevalence of STH is 50 percent or greater, bi-annual mass deworming campaigns target SAC, pre-school-aged children, and at-risk adults, including PW from their second trimester. Where STH prevalence is 20–50 percent, annual mass deworming campaigns can be implemented for the same target groups. For schistosomiasis, when prevalence is 50 percent or greater, annual MDA with praziquantel targets SAC and all at-risk adults; when prevalence is 10–50 percent, MDAs are conducted every two years (Crompton and WHO 2006).

Deworming against STH is provided as part of routine care for PW (after their first trimester) and children ages 12–59 months at MCHWs, ANC visits, and by the national NTDP as part of their lymphatic filariasis elimination programme. Similarly, MDA against schistosomiasis has been conducted by the NTDP for SAC and at-risk adults in all endemic areas since 2008. The NTDP has consistently achieved high coverage rates for deworming in these populations (Hodges et al. 2012; Bah et al. 2016b), and, in the last decade, STH and schistosomiasis rates have declined significantly from high prevalence and intensity to moderate/low prevalence

and low intensity (Jalloh et al. 2016; Bah et al. 2016a, 2016b). This decrease in prevalence and intensity has justified modifications in mass campaigns, which began in 2017.

Health and hygiene education and provision of adequate sanitation can also support deworming efforts by reducing transmission and reinfection (see Strategy 1.2 of this document).

Box 3 provides a summary of current interventions related to anaemia reduction and Table 6 describes additional priority actions to be taken.

### Box 3. Master Plan for Neglected Tropical Diseases Elimination in Sierra Leone 2016–2020

#### Intervention: Deworm against STH and Schistosomiasis

1. Conduct community-based deworming campaigns (including social mobilisation, tools production, logistics support, and procurement/donation management).
2. Provide trainings and refresher trainings, supervision, and monitoring support, for HWs, teachers, community volunteers, and community drug distributors.
3. Provide trainings, equipment, and support for programme managers, storage managers, pharmacy technicians, and finance/procurement staff (including obtaining and managing donated pharmaceuticals, conducting surveys, and using monitoring and evaluation tools).
4. Support community-led total sanitation with market approaches (CLTS+), promotion of hygiene, building of latrines, and related SBC.

Source: MoHS 2016b

**Table 6. Priority Actions to Strengthen or Modify Current Prevention and Control of Soil-Transmitted Helminth and Schistosomiasis**

Intervention		Population Group	Delivery Platform	Priority Actions
<b>Preventive chemotherapy against STH</b>	Deworming (albendazole)	PW	ANC, CBH	1. Improve supply chain management, community sensitisation, and DOTS.
	Deworming (albendazole/mebendazole)	Ages 12–59 months	6MlyCP, MCHWs	1. Ensure smooth transition from twice annual MCHWs to routine 6MlyCP; 2. Conduct lot-quality assurance sampling and/or post-event coverage surveys.
	Deworming (albendazole)	SAC	MDA-LF schools	1. Ensure smooth transition from MDA-LF to MDA-onchocerciasis plus albendazole for SAC 2017–2025.
<b>Preventive chemotherapy against schistosomiasis</b>	Deworming (praziquantel)	SAC*	MDA-SCH	1. Ensure ongoing funding post-2018.
<p><b>Cross-cutting:</b> Conduct landscape analysis to update, develop, and implement targeted SBC to 1) support HWs in providing preventive chemotherapy against STH to PW; 2) encourage PW to seek preventive chemotherapy in early second trimester; 3) promote use of preventive chemotherapy for schistosomes in SAC and at-risk adult populations.**,†</p>				
<p>* In hyper- and meso-endemic chiefdoms.</p> <p>** At-risk populations include PLW and groups with occupations that put them in contact with infested water, such as fishermen, farmers, irrigation workers, or women in daily domestic tasks.</p> <p>† Prevalence of STH and schistosomiasis should be evaluated every two years to determine appropriate drug regimen.</p>				

### Strategy 1.2: Water, Sanitation, Hygiene, and Environment

**Rationale.** Water, sanitation, and hygiene challenges contribute to anaemia by increasing the risk of infections and inflammation. Frequent infections can cause ‘anaemia of inflammation’, which limits absorption of or otherwise prevents the body from appropriately using micronutrients.

**Approach.** To improve WASH, and the environment, projects focusing on access to safely managed drinking water,<sup>6</sup> safely managed sanitation facilities,<sup>7</sup> and promotion of appropriate hygiene behaviours, such as handwashing with soap at critical times, are key. Gaps in WASH efforts in Sierra Leone are particularly prevalent in rural areas (MoHS 2015; ACAPS 2015). A CLTS approach can provide support for these efforts through mobilising the community to engage in behaviour change so that improvements are more sustainable.

Trained health personnel educate others on effective hygiene (Ministry of Energy and Water Resources 2010). There is a need for

focus on ‘Baby WASH’, emphasizing WASH practices to prevent infection in infants and young children. Although more evidence is needed on how to best implement these recommendations, essential actions include maintaining play and feeding environments free from human and animal waste and other environmental contaminants; appropriate disposal of faeces; washing both caregivers’ and children’s hands with soap after faecal contact and before eating, feeding, or preparing food; using improved water sources; ensuring hygienic preparation and safe storage of complementary foods; and feeding only freshly prepared or adequately reheated food (Mbuya 2013; Statistics Sierra Leone and ICF International 2014). A recent trial of improved practices found that creating tippy tap handwashing stations and prioritising soap for handwashing were accepted actions at the community level (SPRING 2016b).

Box 4 provides a summary of current interventions related to anaemia reduction and Table 7 lists additional priority actions to be taken.

<sup>6</sup> Water is considered safely managed when it is located ‘on-premises, available when needed, and free from microbiological and priority chemical contamination’ (WHO 2011b).

<sup>7</sup> Sanitation is considered safely managed if it is a ‘private improved facility where faecal wastes are safely disposed on site or transported and treated off-site; plus a handwashing facility with soap and water’ (WHO 2011b).

#### Box 4. National Water and Sanitation Policy, National Food and Nutrition Security Policy Implementation Plan 2012–2016, and Neglected Tropical Diseases Master Plan 2016–2020

##### **Intervention: clean water supplies for consumption**

1. Train water point technicians on operation and maintenance of facilities; also of water treatment supplies as needed
2. Promote water treatment and safe storage
3. Establish water quality monitoring and surveillance system

Source: National Food and Nutrition Security Policy Implementation Plan 2012–2016

4. Strengthen water quality management, including laws for fair and equal allocation of water, prioritising human needs; creation of public awareness regarding pollution; groundwater surveys for sustainable and ecological development of the resource; human resources with expertise in water
5. Strengthen disaster prevention and management (protecting water supply against flood, drought, pollution)
6. Support community ownership and management of wells/other schemes, access to parts, with communities contributing as able to capital costs while protecting access for poor, to bring supplies in rural areas, towns, and schools to 15, 25 and 4.5 L/day/person respectively
7. Consider needs beyond human use, to minimise contamination and destruction of water sources by livestock; research on alternative supply
8. Ensure adequate, safe urban water supply: realization of 35 L/day/person, minimizing waste, economically reasonable access for the poor, management of waste water

Source: National Water and Sanitation Policy

##### **Intervention: Construction and use of latrines**

Through CLTS with market-based approaches (CLTS+), community members use social pressure to become free from open defecation. Village savings groups or similar entities can help community members save enough money to cover the cost of establishing WASH facilities (Ministry of Energy and Water Resources 2010).

1. Promote CLTS, train emerging CLTS+ natural leaders in open defecation-free (ODF) communities
2. Review and improve latrine designs at PHUs and schools

Source: National Food and Nutrition Security Policy Implementation Plan 2012–2016

3. Promote community investment in sanitation improvements; women's involvement in decision making about sanitation investments
4. Invest in urban sewerage to minimise pollution from sanitation systems
5. Develop financing strategies for urban and rural (grants, in-kind)

Source: National Water and Sanitation Policy

##### **Intervention: Promotion of safe hygiene and waste management, particularly Baby WASH**

1. Promote safe disposal of baby stools and handwashing with soap and water

Source: National Food and Nutrition Security Policy Implementation Plan 2012–2016

2. Emphasise these topics through environmental health officers and health system
3. Promote personal and household hygiene (keeping home and toilet clean, disposal of refuse and solid waste, cleanliness in food preparation areas, keeping water supply covered), community hygiene (e.g. food vendors, keeping animals, school hygiene)

Source: National Water and Sanitation Policy

Table 7. Priority Actions to Strengthen or Modify Current WASH and Baby-WASH Efforts

Intervention		Population Group	Delivery Platform	Priority Actions
Clean water for household use and consumption	Safe drinking water access points & HH treatment	HH	CBH, CLTS, schools	1. Train CHWs and MSGs on household water treatment.
	Household Hygiene	HH	CBH, CLTS, schools	1. Promote handwashing with soap and tippy taps.
CLTS	Promote latrine use	HH	CBH, CLTS, schools	1. Train on CLTS+ process and avoiding relapse. 2. Train WASH committee members and CHWs to monitor their communities. 3. Encourage local materials and labour to ensure community ownership.
	Handwashing	HH	CBH, MSGs schools,	1. Promote handwashing with soap and tippy taps at handwashing stations.
	Baby-WASH*	Ages 6–23 months, HH	CBH, MSG	1. Integrate into current CLTS efforts. 2. Train HWs, CHWs, MSG lead mothers, and teachers on related SBC.
Environmental sanitation	Access to and use of trash management	HH	Trash collection	1. Organise community trash collection days and promote compost waste management by building fences and separating types of waste. 2. Develop within MoHS a monitoring component on sanitation, e.g. CHWs or leaders going house-to-house. 3. Support communities to create by-laws to ensure adherence.
<p><b>Cross-cutting:</b> Conduct landscape analysis to update, develop, and implement targeted SBC to 1) support household water treatment; 2) promote savings for latrines and use of latrines; 3) sensitise communities on WASH and trash management and collection; 4) promote Baby WASH actions as part of current CLTS efforts.</p>				
<p>* Baby WASH actions include keeping children off surfaces with animal faeces, sweeping household surfaces, and creating safe play spaces such as clean mats.</p>				

## Objective 2: Improve Prevention of Chronic Infections and Specialised Health Conditions

### Strategy 2.1: Screening, Counselling, and Management of Sickle Cell Disease

**Rationale.** Sickle cell disease and other genetic disorders cause abnormalities in red blood cells that lead to anaemia. Recognition of the child with SCD on clinical presentation, previous transfusions, or family history allows early intervention, counselling, linking with SCD support groups, outpatient review to monitor, prevent complications, and appropriate treatment during crises. Neonatal screening and counselling for SCD, when linked to timely diagnostic testing, parental education, and comprehensive care, markedly reduces morbidity and mortality in infancy and early childhood (WHO 2016d; Ansong et al. 2013).

**Approach.** To improve screening, counselling, and management of SCD, a comprehensive policy and set of national guidelines needs to be developed focusing on primary prevention that includes: early detection and counselling that provides guidance for patients, families, and teachers on managing SCD; training for health workers; and community education that emphasises social awareness to address the cultural issues that SCD diagnosis can introduce (Ansong et al. 2013). Health providers should be specifically trained to provide long-term daily folic acid (avoiding iron supplements), prevent malaria, and provide antimalarials and penicillin V for children as prophylaxis. During crises, early use of analgesia and maintenance of good fluid intake can prevent deterioration. When admission for hospital care is needed, early use of oxygen, IV fluids, analgesia, antibiotics, and antimalarials (artemisinin-based combination therapies [ACTs]) are helpful for emergency crisis management. Providing outpatient and crisis treatment guidelines for children and adults with SCD is important,

along with safe transfusion practice, and training of clinical staff to recognise and treat the disease appropriately.

Currently, the Sickle Cell Society is the only service specialising in counselling, maintenance, and crisis management of persons with SCD in Freetown. There is limited care in the region, particularly in government services. Patients should have confirmation of their diagnosis, counselling, prophylaxis, and written advice on management of crises. Appropriate written information should also be provided, and shared with teachers and schools.

Currently, a definitive laboratory diagnosis is made by electrophoresis, which is not available in district hospitals or the government service in Freetown. Regional and district hospitals should be able to undertake sickle electrophoresis in government laboratories, and as newer diagnostic tools become available, consider updating diagnosis methods. Currently, a rapid bedside test, developed in the United States, is under trial in Kono District. Researchers from the University of Cincinnati are providing supervision for the trial, and if the method is approved, it may have long term suitability.

Few confirmed SCD patients maintain appropriate prophylaxis, due to the inherent costs, or access timely and appropriate crisis management, due in part to the lack of commodities (prophylaxis, folic acid and oxygen). However, much could be done through early recognition and ensuring SCD-trained health workers are present in many facilities. Proper routine and crisis management for SCD patients is essential to improve their quality of life and survival rates. Key sickle cell NGOs and parents' groups have been shown to help successfully communicate, support, and amplify the practical ways of parenting children with SCD in Ghana (Dennis-Antwi et al 2011).

School teachers also need to be sensitised to the needs of pupils with SCD. Evidence emphasises that teacher awareness and sensitization is insufficient to make a difference, and that school leaders need to implement a policy on supporting pupils with SCD (Dyson 2011). Some schools

in Freetown engage in good practice but no overall policy exists. While people are sensitised to SCD, families, teachers, and institutions need guidelines to ensure that people with SCD do not feel stigmatised but supported. Table 8 lists priority actions to be taken related to anaemia.

Table 8. Priority Actions to Strengthen or Modify Screening, Counselling, and Management of SCD

Intervention		Population Group	Delivery Platform	Priority Actions
Advocacy		NAWG	MoHS, Ministry of Education, Science and Technology	1. Develop National Guidelines and policy for SCD.
SCD service provision	Establish regional SCD crisis management centres	All ages	Non-communicable disease (NCD) units	<ol style="list-style-type: none"> <li>1. Create district-level SCD crisis management centres within NCD units.</li> <li>2. Ensure guidelines are available and HWs are appropriately trained within district level NCD units.</li> <li>3. Support adequate supply of commodities, including oxygen, IV fluids, painkillers.</li> <li>4. Promote safe voluntary blood donation to provide transfusions to SCD patients (blood must be screened and cross-matched for safety, see Objective s6).</li> </ol>
	SCD diagnosis and counselling	WRA and their partners Children and adults Neonatal screening	CBH, NCD units, PHUs	<ol style="list-style-type: none"> <li>1. Provide pre- and in-service training on clinical diagnosis and counselling of SCD to all HWs (including avoidance of iron supplements).</li> <li>2. Develop and roll out SBC for affected family members and teachers.</li> <li>3. Establish laboratory services for SCD diagnosis and care.</li> </ol>
	Outpatient care, prophylaxis, and management	All ages	CBH, NCD units, PHUs	<ol style="list-style-type: none"> <li>1. Distribute LLINs, antimalarial prophylaxis, penicillin V, and folate</li> <li>2. Support specialised SCD clinics to offer preventive care, wellness management, including malaria prevention, early care for pain crises and good nutrition.</li> </ol>
	Wellness management	All ages	CBH, Civil Societies	<ol style="list-style-type: none"> <li>1. Provide counselling education and support for affected families and teachers.</li> <li>2. Support civil society working on SCD issues, including increasing the availability of resources.</li> <li>3. Develop and distribute appropriate information.</li> </ol>
<p><b>Cross-cutting:</b> Conduct landscape analysis to update, develop, and implement targeted SBC to 1) advocate for SCD policy; 2) promote safe, voluntary blood donation; 3) sensitise families and teachers on care and counselling; 4) develop appropriate wellness management communication materials.</p>				

### Strategy 2.2: Prevention and Management of HIV

**Rationale.** HIV infection is a risk factor for anaemia, as chronic infections lead to chronic inflammation and can suppress appetite (Gupta et al. 2009).

**Approach.** Efforts to improve prevention and management of HIV should include increasing coverage of antiretroviral therapy (ART) and prevention of mother-to-child transmission (PMTCT) of HIV. Engaging PW in ART and IYCF counselling as soon as they are diagnosed, promoting preventive actions like condom use and male circumcision, ensuring access to reliable diagnostic testing and counselling, and developing

systems and social support models that encourage continued care and increase client retention are priorities. Particular attention should be paid to targeting priority populations, strengthening community-based delivery systems, counselling and testing, and securing sustainable access to affordable medicines (National HIV/AIDS Secretariat 2012). To reach key populations with prevention and management messages, it is important to develop quality adolescent and youth-friendly services and pursue other delivery channels for testing and counselling.

Box 5 provides a summary of current interventions related to anaemia reduction and Table 9 lists additional priority actions to be taken.

#### Box 5. National HIV Prevention Strategy 2011–2015

##### Intervention: Prevent and manage HIV

1. Promote capacity building, quality assurance, and scale-up of services for HIV counselling and testing through youth, faith-based, and all other health services

##### Intervention: Prevent and manage tuberculosis

1. Screen HIV-positive patients for tuberculosis
2. Ensure all tuberculosis patients diagnosed with HIV are enrolled for care and receive ART
3. Support community efforts on case finding and treatment adherence

Source: National HIV/AIDS Secretariat 2012

Table 9. Priority Actions to Strengthen or Modify Prevention and Management of HIV

Intervention		Population Group	Delivery Platform	Priority Actions
HIV testing, counselling, prevention, management	Voluntary counselling and testing for HIV	CU5, PW	ANC, PHU	<ol style="list-style-type: none"> <li>1. Expand voluntary HIV testing and counselling to include all children presenting sick at therapeutic feeding centres.</li> <li>2. Improve quality of voluntary counselling and testing for HIV of PW.</li> </ol>
	HIV management (nutrition, drugs)	All ages	ANC, PHU	<ol style="list-style-type: none"> <li>1. Review training materials and strengthen information on anaemia, including nutrition counselling of HIV patients.*</li> <li>2. Monitor anaemia in HIV and address its causes when anaemic.</li> </ol>
<p><b>Cross-cutting:</b> Prioritise integration of efforts between HIV and TB; collaborate on training for 'one-stop' points of contact. Separate the TB and HIV policy for use by the focal persons/coordinators at centres.</p>				
<p>* HIV positive patients are more likely to be anaemic and ARVs have been shown to reduce anaemia. However, side effects to these drugs can also impair RBC production.</p>				

### Strategy 2.3: Prevention and Management of Tuberculosis

**Rationale.** Tuberculosis is a chronic disease that contributes to anaemia. Undernutrition is a common co-morbid condition for people with active TB, and is associated with increased risk of mortality and poor treatment outcomes. Patients need good nutrition to boost their immune status to delay progression of disease and encourage quick recovery. Patients have increased nutritional requirements, but commonly have reduced food intake and suffer from poor absorption and loss of nutrients, all of which contribute to malnutrition and vulnerability to anaemia. Food utilization and appetite may be impaired by drug side effects and other opportunistic infections.

**Approach.** To improve prevention and management of TB, efforts should focus on

diagnosis and treatment of childhood TB, increased patient-centred care to minimise loss to follow-up and completion of treatment, implementation of community-based services for TB care and prevention, promotion of the use of isoniazid preventive therapy, and active case finding for early diagnosis and treatment. In addition, improvements in HIV-TB collaboration will improve treatment outcomes for this cohort. Patients' nutritional status assessment, diagnosis and management should be undertaken for TB and TB-HIV patients.

Box 6 provides a summary of current interventions related to anaemia reduction and Table 10 lists additional priority actions to be taken.

#### Box 6. National Leprosy and TB Control Program 2016–2020 Strategic Core, Implementation Plan

##### **Intervention: Screen for HIV infection, malnutrition and other chronic lung diseases in all TB diagnosed children and aggregate the data for under one and under 15 years**

1. Conduct nutritional assessment of TB –TB/HIV patients and HIV exposed children by skilled staff
2. Give nutritional therapy to patients with severe malnutrition in line with WHO recommendations
3. Promote awareness on water, food safety, hygiene and household food security

##### **Intervention: Increase capacity of districts with lower Case Notification Rate than national average**

1. Establish and promote coordination mechanism specific for TB early diagnosis, care, treatment and prevention
2. Identify high risks groups in the districts and improve capacity to rapidly detect and initiate treatment for them

##### **Intervention: Prevent and manage TB**

1. Build capacity of the health care service providers in areas of needs
2. Support implementation of systematic TB screening in health facilities, in-patient wards, and communities, including inpatient isolation of TB patients from other patients

##### **Intervention: Conduct intensified TB case finding**

1. Orient service providers on intensified TB case finding at outpatient clinics, HIV and AIDS Care and Treatment Centres, diabetic clinics, and RMNCH
2. Train CHWs and former TB patients on active case finding of contact of infectious TB cases

Source: (National Leprosy and TB Control Program, 2016)

**Intervention: Integrate Childhood TB and TB-HIV services in all health facilities providing reproductive, maternal and newborn and other child health services**

1. Develop referral and feedback mechanism for linkage between MNCH clinics and TB, TB-HIV units
2. Develop and strengthen TB screening, treatment and prevention systems in health facilities
3. Improve infection, prevention and control (IPC) activities in paediatric facilities to minimize transmission from adults to children

**Intervention: Build capacity of all health service providers involved with childhood TB diagnosis, management and prevention**

1. Identify and train all HWs directly involved in providing paediatric services
2. Train HWs in child and maternal clinics on presumptive TB patient identification (increase index of suspicion)

**Intervention: Intensify child TB screening and diagnosis using high quality TB diagnostics**

1. Screen for HIV infection, malnutrition and other chronic lung diseases to all TB diagnosed children and aggregate the data for under one and under 15 years

**Intervention: Build networks, public relations with high level influential political leaders for Leprosy/TB/ TB-HIV policies' enabling environment**

1. Identify and network with relevant institutions (CC, IPC, WASH) to develop infection, prevention and control (IPC) policies on TB as appropriate

Source: (National Leprosy and TB Control Program, 2016)

Table 10. Priority Actions to Strengthen or Modify Prevention and Management of TB

Intervention		Population Group	Delivery Platform	Priority Actions
TB testing, counselling, prevention, management	Implementation of IPT	CU5 PLHIV	ANC, PHU	1. Expand implementation of IPT to include all CU5 TB-positive pulmonary smear positive TB, as well as all PLHIV.
	TB screening for all malnourished individuals	All	ANC, PHU	1. Review training materials and strengthen information on anaemia, including nutrition counselling of TB patients.* 2. Promote monitoring of TB patients for anaemia and provide guidance for addressing specific causes. 3. Provide TB screening for all patients diagnosed with malnutrition.
	Strengthen TB IPC	All	All	1. Implement administrative level strategies for effective TB IPC, including appropriate facility design, implementation of cough triage, and separation of TB patients.
	Integrate Childhood TB and TB-HIV services	Children	All health facilities	1. Integrate Childhood TB services with RMNCH services to children.
* HIV positive patients are more likely to be anaemic and ARVs have been shown to reduce anaemia. However, side effects to these drugs can also impair RBC production.				

### Objective 3: Improve Reproductive Health and Delivery Care

#### Strategy 3.1: Family Planning

**Rationale.** Inadequate birth spacing can lead to poor maternal and child health. As teenage pregnancy and motherhood are pervasive in Sierra Leone, FP services that support delayed first pregnancy and adequate birth spacing<sup>8</sup> are important in preventing anaemia in WRA and children (Statistics Sierra Leone and UNICEF-Sierra Leone 2011; Scholl 2011).

**Approach.** To improve FP, interventions should provide support for delaying and spacing pregnancy by ensuring availability, access to, and utilisation of FP services; effective counselling to facilitate acceptance and utilisation of these services and methods;

and better integration of FP in reproductive and maternal and child health, including the 6MlyCP. Due to higher risk of anaemia in teenage pregnancy, development of youth and adolescent-friendly services is key (MoHS 2011c). Family planning interventions should focus on increasing the capacity of households, communities, and health facilities to provide appropriate health education and support health facilities to provide counselling and testing for HIV and sexually transmitted infections, and FP methods (WHO 2010).

Box 7 provides a summary of current interventions related to anaemia reduction and Table 11 lists additional priority actions to be taken.

#### Box 7. National Food and Nutrition Security Policy Implementation Plan 2012–2016

##### Intervention: Mobilise community awareness of services and promote use of contraception

1. Procurement and distribution of FP commodities
2. Adolescent-friendly health facilities/services
3. Outreach services/community distribution points, including via CHWs
4. Supporting MSGs to give FP messages; HWs to give counselling during ANC, postnatal care, and immunisation services; other SBC, including leveraging local leaders' authority to promote delayed marriage and initiation of childbearing

Source: (MoHS 2011c).

<sup>8</sup> Adequate birth spacing is considered to be 36 months.

Table 11. Priority Actions to Strengthen or Modify Family Planning Efforts

Intervention		Population Group	Delivery Platform	Priority Actions
Promote of FP services	Public awareness	WRA and family members Male partners	Councils, traditional leaders, religious leaders, MSGs	<ol style="list-style-type: none"> <li>1. Conduct advocacy and sensitisation activities at district and chiefdom levels.</li> <li>2. Promote modern FP through MSGs with the involvement of men.</li> </ol>
Promote comprehensive FP services (including for adolescents)	Contraceptive supply	WRA	6MlyCP, MSGs, adolescent-friendly centres	<ol style="list-style-type: none"> <li>1. Increase supply of imported FP commodities.</li> <li>2. Strengthen supply chain management of all commodities to prevent stock-outs.</li> </ol>
	Provide quality FP counselling		6MlyCP, PHUs, adolescent-friendly centres	<ol style="list-style-type: none"> <li>1. Train HWs on appropriate FP counselling and referral for long-acting reversible contraception (such as hormonal implants), and voluntary surgical contraception (such as bilateral tubal ligation/vasectomy).</li> </ol>
<p><b>Cross-cutting:</b> Conduct landscape analysis to update, develop, and implement targeted SBC to sensitise husbands and other family members about the value of FP and integrate them into pre-established/new channels such as MSGs, 6MlyCP.*</p>				
<p>* To be in conjunction with the recently released RMNCAH strategy.</p>				

### Strategy 3.2: Delayed Cord Clamping

**Rationale.** Delayed cord clamping allows for the passage of blood from the placenta to the infant, which increases iron stores in the newborn for up to six months, and reduces the risk of iron deficiency and IDA in early childhood (WHO, USAID, and MCHIP 2014; WHO 2014b).

**Approach.** To improve delayed cord clamping practices, interventions should promote use of updated best practices among HWs, midwives, and doctors. Delayed cord clamping involves waiting to clamp the

umbilical cord for at least three minutes after the birth or until cord pulsation has ceased. Currently, it is practiced infrequently in Sierra Leone, although it is recommended for all births (whether preterm or at term) while simultaneously initiating essential newborn care (WHO, USAID, and MCHIP 2014). Additionally, CHWs should be educated about the method, so that they can advocate with families to request this practice.

Table 12 presents actions that should be prioritized to strengthen or modify delayed cord clamping efforts in Sierra Leone.

**Table 12. Priority Actions to Strengthen or Modify Delayed Cord Clamping**

Intervention		Population Group	Delivery Platform	Priority Actions
Delayed cord clamping	Advocacy for delayed cord clamping	Midwives	Training institutions	1. Integrate delayed cord clamping in SOPs to emphasise infants' well-being in pre-service training.
	Implementation of delayed cord clamping	HWs	DHMT, PHUs	1. Engage in in-service monitoring of SOPs. 2. Monitor and supportively supervise HWs.

### Strategy 3.3: Maternal Haemorrhage

**Rationale.** Haemorrhage (a blood loss of more than 500 mL) is the leading cause of maternal death, and anaemic women are at increased risk (WHO 2012c). Anaemia identified in the first trimester should be aggressively treated during antenatal care by giving all PW (except women with SCD) 200mg of ferrous sulfate (45mg elemental iron) daily.

**Approach.** Improved emergency obstetric care is necessary to prevent and manage

maternal haemorrhage. This includes use of oxytocin and uterine massage (WHO 2012c). Possible interventions would include orienting HWs on proper identification and improved management of obstructive labour, procuring and distributing appropriate supplies, and orienting women and their families on danger signs.

Box 8 provides a summary of current interventions related to anaemia reduction and Table 13 lists additional priority actions to be taken.

#### Box 8. National Health Sector Strategic Plan 2010–2015

##### Intervention: Blood transfusions

1. Provide adequate and equipped hospitals.
2. Procure, install, and utilise appropriate medical and diagnostic equipment within the health facilities.
3. Establish a sustainable laboratory supplies system as part of the Essential Medicines and Health supplies management, which will ensure steady availability of laboratory equipment, reagents and supplies at all levels.
4. Improve referral system.
5. Expand blood transfusion infrastructure to operate adequately within decentralised health care delivery system.
6. Review and update the National Blood Transfusion Policy and Plan.
7. Reinforce the human resource and technical capacities of the national blood transfusion services.
8. Strengthen the national blood banks and establish a blood bank in each district.
9. Develop standards for quality assurance of blood supply.
10. Recruit and train for both technical and maintenance staff.

Source: Sierra Leone National Health Sector Strategic Plan 2010–2015 (MoHS 2009)

Table 13. Priority Actions to Strengthen or Modify Efforts Addressing Maternal Haemorrhage

Intervention		Population Group	Delivery Platform	Priority Actions
Maternal haemorrhage management	Safe emergency blood transfusion	Communities	CBH, hospitals, HWs  CHWs	<ol style="list-style-type: none"> <li>1. Mobilise and sensitise communities on the importance of donating blood in emergencies to reduce maternal mortality (blood must be screened for safety. see Objective 6).</li> <li>2. Recruit two donors before the ambulance arrives for intrapartum bleeding emergency referral.</li> <li>3. Emphasize the use of partograms in SOPs.</li> </ol>
	Safe delivery	Communities	Pre- and in-service training institutions	<ol style="list-style-type: none"> <li>1. Monitor and provide supportive supervision on safe delivery during in-service practicum portion of training for community health officer surgical assistant certification, and for other skilled HWs.</li> <li>2. Ensure adequacy of delivery environments (e.g. sanitation, electricity, and adequate supplies, such as emergency post-partum haemorrhage packs).</li> <li>3. Improve referral pathways for emergency obstetric conditions at multiple steps of the process.</li> </ol>

## Objective 4: Improve Micronutrient Intake and Diet Quality

### Strategy 4.1: Food Production

**Rationale.** Production of affordable diverse, nutrient-dense foods by a household and/or those supplying markets, can improve the availability, accessibility, and consumption of micronutrient rich foods. Furthermore, nutrition-sensitive agricultural production, processing, and marketing in conjunction with appropriate hygiene and good production practices can help improve food safety (by preventing infections that can lead to inflammation) and allow greater participation of women in decisions related to income generated from their agriculture efforts.

**Approach.** To improve food production, efforts should promote diversification and food processing and preservation practices that minimise post-harvest losses, food spoilage, and encourage families that generate income from selling their crops to prioritise keeping a portion for themselves. Actors can improve diversification by promoting production and consumption of animal-source foods and nutrient-dense crops. In Sierra Leone,

pro-vitamin A cassava has been released, and pro-vitamin A maize and orange fleshed sweet potatoes are being tested. However, to date, consumption of fortified and biofortified foods is low, especially in poor, rural households.

Food processing and preservation that observes good personal hygiene practices can help address household needs to increase the supply of quality foods. Safe food production, to protect both farmers and consumers, is also important. Key recommendations for reducing contamination include practicing good personal hygiene; protecting humans from faecal contamination; keeping fish and other animals healthy; evaluating and managing risks from irrigation water, keeping ponds clean and managing water quality; and keeping harvest and storage equipment clean (WHO 2012a). The regulation and testing of fortified products in the market for both domestic and imported products should be strengthened.

Box 9 provides a summary of current interventions related to anaemia reduction and Table 14 lists additional priority actions to be taken.

**Box 9. National Food and Nutrition Security Policy Implementation Plan 2012–2016****Intervention: Promote production and home consumption of a diversity of foods for all household members over six months**

1. Promote production and consumption of diversified foods.
2. Provide extension training on production, processing, and utilisation of locally produced nutritious foods, linking nutrition education to agriculture.
3. Expand ABCs and access to credit to facilitate access to fertilisers and improved seeds, to smallholder farmers, especially women.
4. Establish nutrition-friendly school gardens, integrate nutrition into public school curricula.
5. Promote research on nutritious local foods and appropriate technologies (such as labour-saving devices) and disseminate through agriculture extension.
6. Conduct research, adapt, and disseminate technologies, train, and promote post-harvest handling, preservation, and value addition

**Intervention: Promote production, processing, and storage to increase food safety**

The main activities under current policy for this intervention include:

1. Strengthen and implement code and guidelines on food hygiene for locally produced and imported foods.
2. Ensure compliance on hygiene and nutrition standards of food prepared in school feeding and other institutional feeding.
3. Develop training manuals, training, and promote safety and quality of food sold by food companies and vendors to the public.
4. Support farmers to process and add value to their farm produce. Equip ABCs, support farmers in food processing, value addition, and marketing facilities such as stalls and cool rooms for safety and storage.

Source: (MoHS 2011c)

Table 14. Priority Actions to Strengthen or Modify Safe Production of Micronutrient-Rich Foods

Intervention		Population Group	Delivery Platform	Priority Actions
Production and consumption of micronutrient-rich foods	Producing micronutrient-rich food	HH	ABCs, MSG, private sector	<ol style="list-style-type: none"> <li>1. Facilitate ABCs' relationships with sellers to access poultry and small ruminants, seeds, and planting material for micronutrient-rich foods.</li> <li>2. Promote backyard gardens and fish ponds.</li> <li>3. Advocate with government breeders, traders, and implementing partners for increased access to micronutrient-rich crop varieties, including biofortified foods.</li> </ol>
	Industrial fortification	HH	ABCs, private sector	<ol style="list-style-type: none"> <li>1. Support the establishment of a food safety authority with the mandate to make appropriate fortification of oil and flour mandatory.</li> </ol>
	Consumption of micronutrient-rich foods	HH	ABCs, MSGs	<ol style="list-style-type: none"> <li>1. Sensitise the public on the benefits of consuming micronutrient-rich foods.</li> <li>2. Raise awareness among producers about saving some of micronutrient-rich foods for home consumption.</li> <li>3. Support the popularization of Food Based Dietary Guidelines.</li> </ol>
Safe processing and storage	Implementing safe production, processing, and storage practices	HH	ABCs, MSGs	<ol style="list-style-type: none"> <li>1. Map agriculture interventions to WASH risks.</li> <li>2. Review training materials and update with new material on WASH and post-harvest handling in extension curricula.</li> <li>3. Promote farmer health and safety to protect from infections.</li> </ol>
	Support discussion of food safety at policy and law level	HH	Private sector, markets	<ol style="list-style-type: none"> <li>1. Train stakeholders along the food chain to appreciate the importance of food safety on human health.</li> <li>2. Advocate for the development and rollout of a food safety policy.</li> </ol>
<p><b>Cross-cutting:</b> Conduct landscape analysis to update, develop, and implement targeted SBC for families to promote micronutrient-rich food production,* consumption, safe processing and storage.</p>				
<p>* Backyard gardens, poultry and small ruminants, and harvesting wild foods should be promoted to increase micronutrient-rich food production.</p>				

## Strategy 4.2: Improve Maternal Infant and Young Child Feeding

**Rationale.** Consuming micronutrient-rich diets promotes healthy foetal growth and helps prevent anaemia in both mother and baby. For infants, early initiation of breastfeeding and exclusive breastfeeding for six months helps reduce anaemia by minimizing the risk of infection. In mothers, early initiation of breastfeeding reduces the risk of postpartum haemorrhage (Begum and Dewey 2010).

**Approach.** To improve maternal, infant, and young child feeding, efforts should focus on both quantity and quality. A pregnant woman requires additional calories and a diverse diet to support the growing foetus and her own physical and nutritional demands. Opinion leaders and families should be encouraged through SBC efforts to help PLW access and consume a diverse and sufficient diet. Appropriate IYCF practices

include early initiation of breastfeeding, exclusive breastfeeding for six months, and timely and appropriate complementary feeding with continued breastfeeding for two years (MoHS 2015; Scholl 2011). Promoting appropriate IYCF relies on several key strategies, including integrating feeding counselling into pre-service training of health workers as well as outreach services, and engaging MSGs and other community actors to encourage behaviour change within households (MoHS 2011b; MoHS 2011c). Adding micronutrient-rich foods, such as fish, to strengthen the quality of complementary foods, can also help improve nutrition. Household food preparation to preserve bioavailability of micronutrients should be encouraged.

Box 10 provides a summary of current interventions related to anaemia reduction and Table 15 lists additional priority actions to be taken.

### Box 10. National Food and Nutrition Security Policy Implementation Plan 2012–2016

#### Intervention: Promote improved exclusive breastfeeding and diets of young children and their mothers

1. Adapt Code on Marketing of Breastmilk Substitutes.
2. Strengthen Baby-Friendly Hospital and Community Initiatives, as well as baby-friendly farms.
3. Implement nutrition education and mass media campaign on IYCF, including for adolescent mothers, through MSGs, farmer field schools, and other means, including strengthening university courses and pre-service curricula for social workers and community health volunteers, and clinic demonstration gardens.
4. Promote appropriate complementary feeding practices from six months; e.g. through practice with the MSGs and farmer field schools.

Source: MoHS 2011c

Table 15: Priority Actions to Strengthen or Modify Maternal, Infant, and Young Child Nutrition

Intervention		Population Group	Delivery Platform	Priority Actions
IYCF	Optimal breastfeeding	Ages 0–59 months	ANC, MSGs	<ol style="list-style-type: none"> <li>1. Support MSGs to provide adequate counselling on optimal breastfeeding.</li> <li>2. Support hospitals, health centres, communities, and workplaces to create and maintain ‘baby-friendly facilities’*</li> <li>3. Strengthen regulation on marketing of breastmilk substitutes.</li> </ol>
	Improved complementary feeding	Ages 6–24 months	6MlyCP, households, MSGs	<ol style="list-style-type: none"> <li>1. Promote demonstration gardens in health facilities and schools, coupled with participatory cooking sessions at those facilities, MSGs, and FBOs.</li> </ol>
Maternal diet	Improved feeding of PLW	PLW	6MlyCP, households, MSGs	<ol style="list-style-type: none"> <li>1. Train HWs, extension workers, and outreach workers to provide counselling on maternal diet, during ANC visits, MSGs, FBOs.</li> </ol>
Dietary diversity	Improved dietary practices	All ages	Agriculture platform, CBH, MSGs, PHUs	<ol style="list-style-type: none"> <li>1. Develop training materials for Sierra Leone Food-Based Dietary Guidelines for different delivery channels.</li> <li>2. Build capacity of all health staff, CHWs, and MSGs to promote the Sierra Leone Food-Based Guidelines.</li> </ol>
<p><b>Cross-cutting:</b> Conduct landscape analysis to update, develop, and implement SBC targeted to husbands and grandmothers on 1) optimal breastfeeding, specifically to promote avoiding pre-lacteals and other foods for first six months and to giving mothers the time to breastfeed; 2) optimal complementary feeding; 3) optimal feeding for PLW.</p>				
<p>* Baby-friendly facilities are environments supportive of exclusive and continued breastfeeding.</p>				

### Strategy 4.3: Improve Intake of Iron-Folic Acid Supplementation

**Rationale.** Even in a setting such as Sierra Leone, where the prevalence of IDA is low, pregnancy remains a period of increased iron needs (Meier et al. 2003). IFA supplementation during pregnancy has the potential to reduce maternal and foetal anaemia, low birthweight, and pre-term delivery (MoHS 2015; Scholl 2011).

**Approach.** To improve intake of IFA supplementation among PW, efforts should promote individual behaviour change, effective delivery channels, and sustainable access. Daily IFA supplementation should be provided as early as possible in pregnancy, and behaviour change messages that effectively communicate benefits and management of

side effects are key for compliance. Iron-folic acid supplementation is typically provided during ANC visits, but promotion through other channels, such as MCHWs and 6MlyCP, can also be beneficial. Sustainable access to IFA supplementation requires improving supply chain management (to avoid stock-outs and undersupply of IFA supplements) and ensuring logistical access to remote PHUs. Poor compliance is a challenge to IFA supplementation due to the side effects including nausea, reflux, and constipation that can be experienced at the high dosage (60mg) currently distributed.

Box 11 provides a summary of current interventions related to anaemia reduction and Table 16 lists additional priority actions to be taken.

#### Box 11. National Food and Nutrition Security Policy Implementation Plan 2012–2016

##### Intervention 4.3. Improve distribution and uptake of IFA supplementation

1. Provide routine iron folate supplementation for PW through the health system.
2. Promote compliance, including messages through community radio and other media outlets, to improve iron-folate compliance and ANC.

Source: (MoHS 2011c)

**Table 16: Priority Actions to Strengthen or Modify IFA Supplementation during Pregnancy**

Intervention		Population Group	Delivery Platform	Priority Action
IFA	Promote IFA compliance	HWs	ANC, PHUs	<ol style="list-style-type: none"> <li>1. Reduce iron in the IFA dose from 60 mg to 30 mg to maintain effectiveness while increasing compliance for 90+ days.</li> <li>2. Update guidelines to reflect the change in dosage, and integrate updates into training packages.</li> <li>3. Improve training on counselling for IFA supplementation compliance, and ensure discussion of how to manage side effects and other barriers.</li> <li>4. Transition to multiple micronutrient supplements.</li> </ol>
<p><b>Cross-cutting:</b> Conduct landscape analysis to update, develop, and implement SBC targeted to PW on benefits of IFA and management of side effects.</p>				

### Strategy 4.4: Sustain Intake of Vitamin A Supplementation

**Rationale.** Improvement of vitamin A status has been shown to reduce anaemia and also improves effectiveness of iron supplementation (Semba and Bloem 2002).

**Approach.** The twice-yearly mass distribution of Vitamin A to children ages 6–59 months was introduced in 2005 and has been consistently effective since then, with coverage equitable by age, district, maternal education, and religion (Sesay FF et al 2014). However, twice yearly distribution leaves infants just under 6 months of age at the

time of a mass distribution unprotected until the next campaign. Because this is a period of particular vulnerability (as exclusive breastfeeding transitions to complementary feeding), integrating VAS with a combined reproductive and child health routine health contact point at six-months was introduced in 2011 and is now transitioning into the 6MlyCP. Some districts will maintain mass campaigns for children ages 6–59 months old whilst the 6MlyCP is completely phased in by 2021.

Box 12 provides a summary of current interventions related to anaemia reduction and Table 17 lists additional priority actions to be taken.

#### Box 12. National Food and Nutrition Security Policy and Implementation Plan 2012–2016

##### Intervention: Promote and implement vitamin A supplementation

The main activities under current policy for this intervention include:

1. Conduct mass administration of vitamin A to children 6–59 months.
2. Promote participation in vitamin A supplementation.
3. Support CHWs to monitor compliance with vitamin A.

Source: MoHS 2011b

Table 17: Priority Actions to Strengthen or Modify Vitamin A Supplementation

Intervention		Population Group	Delivery Platform	Priority Actions
VAS	Implementation through existing campaigns and contact points	CU5	6MlyCP, DHMT, MCHWs, HWs, training institutes	<ol style="list-style-type: none"> <li>1. Ensure smooth transition by DHMTs from mass to routine VAS within the 6MlyCP in the first phase districts (Bo, Kenema and Koinadugu) in late 2017.</li> <li>2. Conduct operational research and share lessons learnt with partners.</li> <li>3. Promote VAS as part of the integrated 6MlyCP package.</li> <li>4. Update pre-service training curricula for HWs on the 6MlyCP.</li> </ol>

## Objective 5: Improve Education of Girls and Women

### Strategy 5.1 Improve Access and Quality of Schools for Girls and Women

**Rationale.** Education among girls and WRA will facilitate empowerment and contribute to the identified strategies, including increasing use of LLINs, reducing malaria rates, improving WASH/baby-WASH practices (reduce STIs, and other infections), increasing the use of modern forms of contraception, delaying first pregnancy, improving birth spacing to 36 months, increasing attendance at ANC and complying with IPTp and IFA, and increasing women's participation in the use of agricultural income for home-consumption of more diverse, nutrient dense commodities.

**Approach.** To improve education of girls and women, efforts should focus on making schools physically and economically accessible, and keeping girls in school especially as they move to higher levels of

education. This will involve creating safer more protective environments through increased engagement with teachers, SMCs, and Community-Teacher Associations to support menstrual hygiene, ensure availability and maintenance of improved sanitation facilities, and provide health education and life skills on topics such as social and emotional learning, dealing with peer pressure, gender-based violence (GBV), and emotions.

Out-of-school children and adolescents, as well as school-going adolescents, need to be considered. Many are vulnerable due to their limited education, early marriages, teenage pregnancies, or having been orphaned, abandoned or disabled.

Box 13 provides a summary of current interventions related to anaemia reduction and Table 18 lists additional priority actions to be taken.

**Box 13. Government of Sierra Leone Education Sector Plan 2014–2018****Intervention 5.1.1: Increase access to pre-school for children ages 3–5 years old**

1. Develop and pilot cost-effective community-based pre-school targeting the most marginalised communities. This includes constructing early education spaces, developing minimum standards, and training teachers and caregivers.

**Intervention 5.1.3: Improve literacy and basic skills education**

1. Launch a sustained national campaign on the benefits/advantages of being literate.
2. Train and provide improved incentives for literacy facilitators/teachers.
3. Establish more and better resourced non-formal basic skills training and literacy centres.

Source: Ministry of Education, Science, and Technology 2013

**Intervention 3.1: Ensure all primary, junior, secondary, and senior secondary schools provide age-appropriate comprehensive sexuality education, using culturally relevant approaches**

1. Advocate for the inclusion of comprehensive sexuality education in teacher training curriculum.
2. Develop and disseminate comprehensive sexuality education packs and train workforce.

**Intervention 3.2: Strengthen guidance and counselling within schools**

1. Train and equip guidance counsellors.
2. Advocate for reduced teaching load and established space for guidance counsellors.

**Intervention 3.3: Ensure junior secondary and senior secondary schools provide adequate sanitation facilities for menstrual hygiene management**

1. Conduct an assessment of school menstrual hygiene facilities.
2. Work with local councils to develop strategies and action plans to improve menstrual hygiene facilities.

Source: National Secretariat for the Reduction of Teenage Pregnancy, 2017

Table 18. Priority Actions to Strengthen or Modify Education

Intervention	Population Group	Delivery Platform	Priority Actions
Increase access to early care and education for children ages 3–5 years	Girls ages 3–5 years	Pre-schools, early education institutions	<ol style="list-style-type: none"> <li>1. Advocate with stakeholders to ensure implementation of early childhood care and education.</li> <li>2. Review and update existing curriculum on early care and education.</li> <li>3. Strengthen teaching certification for early care and education to ensure qualified providers.</li> </ol>
Increase access to functional latrines and washrooms	Pre-adolescent girls, adolescent girls	Primary schools, SMCs	<ol style="list-style-type: none"> <li>1. Advocate with SMCs to construct and maintain functional latrines and washrooms in all schools.</li> </ol>
Health education for faculty and students' menstrual hygiene management	Teachers, adolescent girls	Secondary schools	<ol style="list-style-type: none"> <li>1. Strengthen nutrition education within the school curriculum.</li> <li>2. Include SCD school curriculum.</li> <li>3. Roll out the National Life Skills curriculum.</li> </ol>
Sensitise trainees on retention of girls in education	Teacher trainers	Tertiary education institutions	<ol style="list-style-type: none"> <li>1. Train teachers to oversee SMCs' cleaning and maintenance of latrines and washroom.</li> <li>2. Train teachers on school sanitation, hygiene and education for sharing with children.</li> <li>3. Train teachers, organise school clubs, and roll out messaging around encouraging students to support each other to catch up on any lessons missed.</li> </ol>
Girl-centred programming	Community leaders	NGOs	<ol style="list-style-type: none"> <li>1. Create safe spaces, develop and recruit for mentorship programs.</li> <li>2. Encourage leadership development and mentorship.</li> <li>3. Engage in activities to encourage asset building and economic strengthening</li> <li>4. Address reproductive health, sexually transmitted infections, GBV and clinical services.</li> <li>5. Reach extremely vulnerable groups.</li> </ol>
<p><b>Cross-cutting:</b> Conduct landscape analysis to assess girls most at risk for dropping out and to update, develop, and implement targeted SBC to 1) create awareness about benefits of early childhood development among mothers, families and communities; 2) educate school administrators, teachers, and parents about the need to support young women with menstrual hygiene management;* 3) girl-centred programming.</p>			
<p>*Support for young women with menstrual hygiene management should include facilitating discussions at home and supporting them to obtain supplies, supplements, etc.</p>			

## Objective 6: Improve Integrated Platforms to Deliver Anaemia Interventions

### Strategy 6.1

**Rationale.** Interventions to address anaemia need to be integrated and delivered as a package to maximize effectiveness.

**Approach.** To improve integrated platforms to deliver anaemia interventions, efforts should

focus on increasing effectiveness and capacity of PHUs, CBH, MCHWs, ANC, 6MlyCP, and agricultural platforms.

Table 19 presents actions that should be prioritized to strengthen or modify anaemia-related delivery platforms in Sierra Leone.

**Table 19. Priority Actions to Strengthen or Modify Delivery Platforms**

Intervention		Population Group	Delivery Platform	Priority Actions
Strengthen provision of key ANC commodities	IFA (90+ days), ITPp (minimum three doses), Albendazole at first visit in 2nd trimester, one LLIN	PW	ANC	<ol style="list-style-type: none"> <li>1. Update guidelines aligned with the new RMNCAH strategy and recommendations for a positive pregnancy experience (WHO).</li> <li>2. Update tools and accompanying job aids (checklists) on package of services.</li> <li>3. Monitor and supportively supervise CHWs and HWs to ensure anaemia-related interventions are being provided.</li> </ol>
	Quality of ANC services	PW	ANC	<ol style="list-style-type: none"> <li>1. Assess and create a plan to improve ANC services to reduce maternal anaemia and risk of haemorrhage.</li> </ol>
Phase-in 6MlyCP	FP, IYCF, VAS	CU5, WRA	HWs, CHWs, MSG-lead mothers	<ol style="list-style-type: none"> <li>1. Expand advocacy, social mobilisation, training to all PHUs-nationwide.</li> <li>2. Advocate at national, district, and community levels to improve quality of IYCN and FP counselling (including promoting hormonal implants).</li> </ol>

Intervention		Population Group	Delivery Platform	Priority Actions
Strengthen PHU and hospital services	FP, ANC, PHU outreach	PW, WRA	PHU outreach services	<ol style="list-style-type: none"> <li>1. Strengthen existing CHW capacity.</li> <li>2. Support the process of moving from volunteer to MoHS-paid trained CHWs.</li> <li>3. Address retention of skilled HWs.</li> <li>4. Make properly screened, safe blood* available for transfusions at district level.</li> <li>5. Establish blood banks with trained personnel and proper screening facilities.</li> <li>6. Sensitise HWs and CHWs on the importance of promoting blood donation and understanding the parameters for blood groups and donations.</li> <li>7. Develop campaigns and mobilise community and family members to donate blood.</li> </ol>
Strengthen CBH services	PHU outreach, community monitoring groups	CU5, PW, WRA	CHWs, MSGs, volunteers, village/ward committees	<ol style="list-style-type: none"> <li>1. Improve quality of existing structures.</li> <li>2. Strengthen referral systems, creating linkages between community structures.</li> </ol>
Strengthen CBH services	IYCF, FP, WASH	CU5, WRA	MSG	<ol style="list-style-type: none"> <li>1. Scale up high quality MSGs nationwide.</li> <li>2. Involve men in existing MSGs or create fathers' groups to engage men and boys.</li> <li>3. Improve monitoring and supervision.</li> </ol>

Intervention		Population Group	Delivery Platform	Priority Actions
Strengthen IMCI	Management of malaria, diarrhoea, anaemia assessment	CU5	CBH, PHUs	<ol style="list-style-type: none"> <li>1. Promote timely care seeking.</li> <li>2. Support CHWs to provide treatment for diarrhoea with ORS and zinc.</li> <li>3. Train HWs on clinical diagnosis of anaemia and referral.</li> <li>4. Support differential diagnosis of malaria.</li> </ol>
Strengthen multi-sectoral platforms	Multi-stakeholder and multi-sector collaboration	All ages	All schools, training institutions, local councils, traditional leaders, traditional healers	<ol style="list-style-type: none"> <li>1. Strengthen coordination and delivery of anaemia-related interventions through schools.</li> <li>2. Integrate actions, particularly sanitation, malaria, and environmental hygiene into pre-service training curricula.</li> <li>3. Integrate actions on anaemia into in-service training of HWs and teachers.</li> <li>4. Sensitize and use local governance structures to address anaemia.</li> </ol>
<p><b>Cross-cutting:</b> Conduct landscape analysis to update, develop, and implement targeted SBC to sensitise PWs on ANC services and their benefits, and communities on Free Health Care for All.</p>				
<p>* Blood donations should be screened for HIV, hepatitis, and syphilis.</p>				

## MONITORING, EVALUATION, AND LEARNING

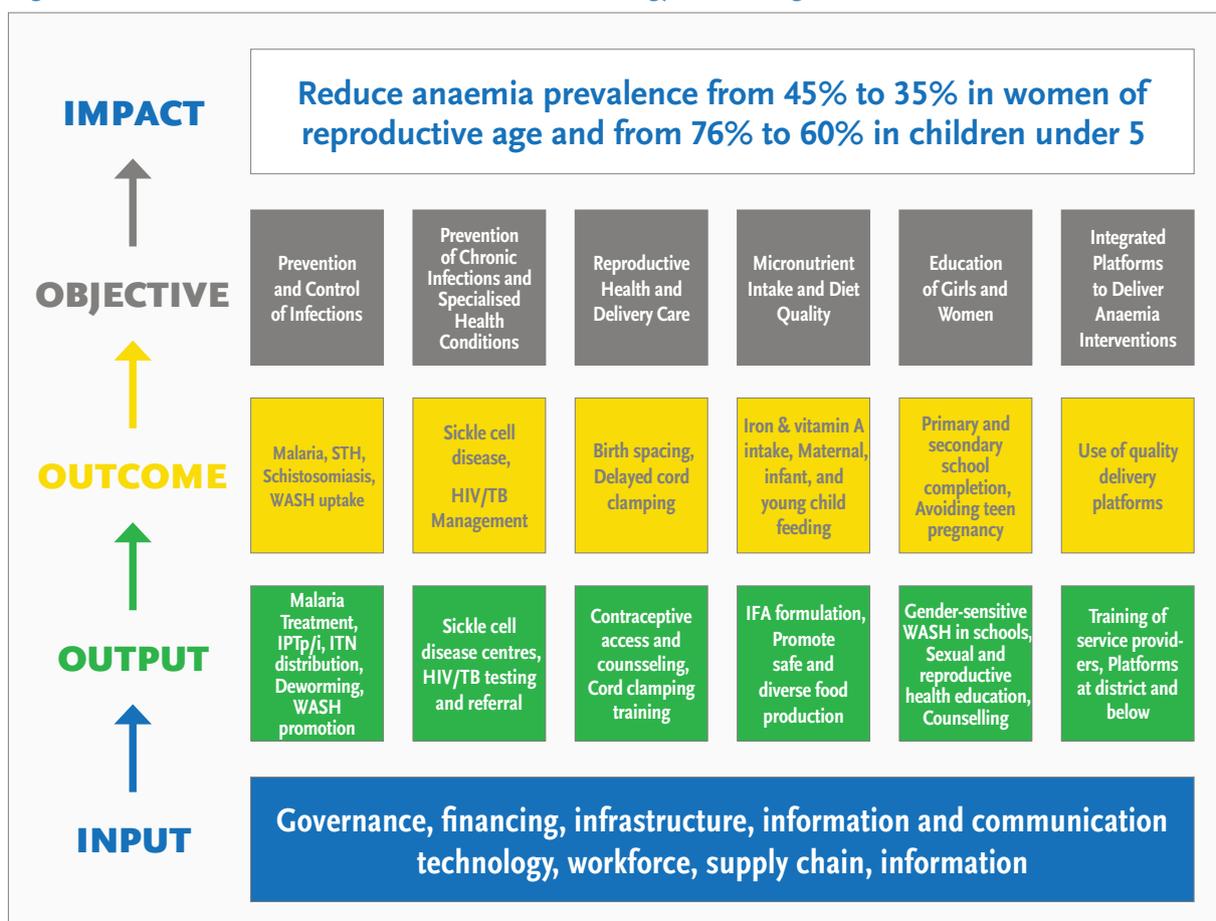
### Monitoring & Evaluation of the Strategy and Priority Actions

The Government of Sierra Leone is committed to monitoring the progress of the National

Anaemia Prevention and Control Strategy.

The Monitoring and Evaluation framework below (Figure 6) uses current systems to track progress in implementing priority actions and meeting higher-level targets.

Figure 6. National Anaemia Prevention and Control Strategy Monitoring and Evaluation Framework



Data sources used for monitoring and evaluation (M&E) efforts include population-based household surveys, such as the DHS and Multiple Indicator Cluster Surveys (MICS); facility and CBH system data and routine data collected by non-health sector actors; and other surveys, such as health facility surveys, programme surveys, and lot-quality assurance sampling (LQAS)/ post-event coverage surveys. Annex 1 includes information on these data sources, as well as indicators and targets.

Appropriate data will be compiled, reported, and discussed at community, chiefdom, district, and national levels. There will be a bi-annual review meeting in each district led by the District Council and a national bi-annual meeting led by the NAWG. Dissemination of results to stakeholders will help support continued multi-sectoral implementation and engagement, while monitoring progress on an on-going basis will allow stakeholders to make real-time adjustments to implementation plans.

### Implementation Research

Implementation research focuses on how to improve the design, implementation, and uptake of interventions. The NAWG will

undertake an implementation research prioritisation exercise to develop a context-specific learning agenda. Potential areas of study can be found in Table 20.

**Table 20. Potential Implementation Research Priorities to Address**

<p><b>Collecting and analysing data for decision-making</b></p>	<ul style="list-style-type: none"> <li>• Conduct neonatal screening for SCD to better understand prevalence at national and regional levels.</li> <li>• Better understand the contributing factors to anaemia, such as reasons why iron deficiency and IDA are so low (e.g. high iron in groundwater or other factors), and determine if there are pockets of the country with iron deficiency or if levels of iron deficiency are low throughout the country.</li> <li>• Develop district-level anaemia dashboards and train district nutritionists in their maintenance.</li> <li>• Develop indicators for new activities, such as delayed cord clamping, Baby-WASH, 6MlyCP, and nutrition-sensitive agriculture.</li> <li>• Include IPTi indicator in household surveys.</li> </ul>
<p><b>Assessing barriers and facilitators</b></p>	<ul style="list-style-type: none"> <li>• Document use of LLINs, compliance with reduced dose IFA, early attendance at ANC, use of contraceptives, utilisation of latrines and safe water supply (CLTS), and other positive household practices to identify influencers and design effective SBC strategies.</li> <li>• Assess barriers and facilitators to testing and treatment of malaria, provision of zinc with oral rehydration solutions in cases of diarrhoea, and other positive practices by HWs and CHWs.</li> <li>• Design effective SBC strategies and operational approaches.</li> </ul>
<p><b>Operationalising implementation approaches</b></p>	<ul style="list-style-type: none"> <li>• Assess status of SCD counselling, maintenance therapy, and referral to resource practices.</li> <li>• Engage in financial planning for further development of medical, educational, social, and cultural resources.</li> <li>• Develop an operational approach to transition from mass VAS and deworming during MCHWs to routine provision at 6MlyCP.</li> <li>• Identify appropriate approaches for diagnosis of febrile episodes at PHU level (not just RDTs for malaria).</li> <li>• Assess approaches to strengthen agriculture platforms, school platforms, and community platforms (e.g. MSG with husband involvement).</li> </ul>

## MULTI-SECTORAL IMPLEMENTATION APPROACH

To effectively address the multiple factors contributing to anaemia, a multi-sectoral and integrated approach must be used. In Sierra Leone, over 20 government ministries and agencies, with diverse interests and areas of expertise, can play a role in reducing anaemia

(Table 21). Effectively implementing the anaemia strategy requires coordination and collaboration of these government ministries and agencies, as well as partner organisations at the global, national, district, and community levels.

**Table 21. Government Ministries, Universities, and Agencies Essential to Addressing Anaemia**

• Ministry of Health and Sanitation	• Ministry of Trade and Industry
• Ministry of Agriculture, Forestry, and Food Security	• Ministry of Youth Affairs
• Ministry of Education, Science, and Technology	• Ministry of Labour and Social Security
• Ministry of Finance and Economic Development	• Office of the President
• Ministry of Social Welfare, Gender, and Children's Affairs	• Sierra Leone Standards Bureau
• Ministry of Local Government and Rural Development	• Statistics Sierra Leone
• Ministry of Lands, Country Planning, and Environment	• Relevant sectoral committees of parliament
• Ministry of Foreign Affairs and International Co-operation	• SUN secretariat
• Ministry of Energy	• School of Midwifery, PCMH, Freetown
• Ministry of Water Resources	• University of SL
• Ministry of Internal Affairs	• Njala University
	• School of Midwifery, Masuba, Makeni
	• Eastern Polytechnic
	• Ernest Bai Koroma University
	• Nursing schools: Serabu, Segbwema, Masanga, Matru John

The national, district, and local government's collaborative partners include bilateral and multilateral donors, national and international research and academic institutions, the private sector, the media, and civil society organisations, including cultural and

faith-based institutions. The non-governmental members of the NAWG to date are listed in Table 22.

**Table 22. United Nations Agencies and Civil Society Organisation Members (to Date) of the NAWG**

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• Aberdeen Women’s Centre</li> <li>• Action Against Hunger</li> <li>• Concern Worldwide</li> <li>• Focus 1000</li> <li>• Helen Keller International</li> <li>• International Medical Corps</li> <li>• Johns Hopkins University</li> <li>• Marie Stopes Sierra Leone</li> <li>• Plan International</li> </ul> | <ul style="list-style-type: none"> <li>• Sierra Leone Sickle Cell Society</li> <li>• SL Agricultural Research Institution</li> <li>• SUN secretariat</li> <li>• UNICEF</li> <li>• WHO</li> <li>• World Vision Sierra Leone</li> <li>• Food and Agriculture Organization</li> <li>• World Food Programme</li> <li>• UN Women’s Board</li> </ul> |
|---|--|

At the national level, the MoHS will be responsible for the overall coordination of implementing this strategy, with technical support and guidance provided by the NAWG. At the district level, the District Council will coordinate anaemia prevention and control activities and coordinate with partners.

#### Process for Input on Policies, Strategies, and Implementation Plans

The MoHS, with support from the NAWG, will identify potential collaborating groups, create working partnerships, and annually review existing programmes to guide anaemia prevention and control activities.

For policies, strategies, and plans identified as needing stakeholder input, the MoHS will coordinate participation and collection of feedback for the revision process. As appropriate, civil society and private sector collaborators will be asked to participate in

the execution of anaemia prevention and control interventions, such as food production and fortification, SBC, and health services interventions related to this strategy.

Development of a sickle cell policy is necessary. In Nigeria, where prevalence of SCD and malaria are comparable to Sierra Leone, a policy was recently developed that could provide guidance. The policy should include neonatal screening to ensure identification of babies with SCD, along with counselling of caregivers on care and management. At the national level, funding for essential medicines, as well as for necessary CHWs and HWs should be prioritized. Community education and sensitisation with links to civil society organisations, parents’ groups, schools, and school clubs should be emphasized, especially in rural areas.

## COMMUNICATION AND ADVOCACY

The implementation plan will include an advocacy and communication component, which will cover each priority action to encourage local and community actors, as well as individual Sierra Leonean household members, to take up actions to prevent anaemia. To motivate both levels of decision makers, advocacy efforts should emphasise the negative impact of anaemia on health, social, and economic well-being.

Specific communications strategies should:

- encourage ministries to review, implement, monitor, and evaluate relevant policies and implementation plans that support the overall strategy
- encourage ministries to use an anaemia 'lens' as they prepare the next iterations of the policies and plans mentioned in Annex 2. Ministries should be aware of how actions can be integrated across sectors, and should prioritise identifying, allocating, and protecting the human, financial, and organisational resources that support each intervention
- motivate national research and academic institutions to support relevant anaemia-related education and training for health service providers, teachers, Ministry of Agriculture, Forestry and Food Security staff and other professionals. These institutions will also likely need to support integration of actions within and across sectors
- engage development partners and UN agencies in advocacy for increasing resources to support the strategy actions. Partners and agencies should also support development of policies and plans and build capacity to support the strategy
- reach out to NGOs for help training community-level health, agriculture, and other agents on the strategy's actions to integrate anaemia prevention and control. These community-level agents will also support local actors to maintain a strong commitment to multi-sectoral collaboration
- convince private sector actors to support health services, agricultural market actors, and vendors of supplies for latrines and handwashing stations to build a market for and provide supplies and services that will reduce anaemia
- utilise a district-level advocacy meeting involving council, traditional, and religious leaders to kick off the multi-sectoral understanding of anaemia prevention and control.

The NAWG will engage these actors by increasing motivation, identifying and removing barriers, and increasing opportunities to support the strategy. Necessary communication materials will be developed through formative research and collaboration with media and communications firms.

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## ANNEX 1: MONITORING AND EVALUATION DATA COLLECTION AND FREQUENCY

Strategy	Indicator	Collection Tool	Frequency	Population Group
<b>OBJECTIVE 1: IMPROVE PREVENTION AND CONTROL OF INFECTIONS</b>				
Malaria Control	Percentage who received at least three doses of IPTp for malaria during their last pregnancy	Malaria Indicator Survey (MIS)	2 years	PW
	Percentage who received at least three doses of IPTi3 through EPI services	Health Management Information System (HMIS)	Annually	CU1
	Percentage of suspected malaria cases that received a parasitological test in the community		Monthly	CU5
	Percentage who slept under an insecticide-treated net the previous night	Household surveys such as periodic MIS, DHS, or MICS	Every 2–5 years	
	Percentage who slept under an insecticide-treated net the previous night			
STH Control	Percentage of pre-SAC, SAC and PW who have been dewormed	Post-event coverage surveys	Yearly	Pre-SAC, SAC and PW
	Prevalence and intensity of infections	National surveys by the NTDP	Every 3 years	SAC, at risk adults
Schistosomiasis Control	Percentage of SAC and at-risk adults who have taken praziquantel annually	Post-event coverage surveys	Yearly	
	Prevalence and intensity of infections	National surveys by the NTDP	Every 3 years	SAC
WASH	Percentage using improved sanitation facilities	DHS/MICS	Every 2–5 years	Household

Strategy	Indicator	Collection Tool	Frequency	Population Group
<b>OBJECTIVE 2: IMPROVE PREVENTION OF CHRONIC INFECTIONS AND SPECIALISED HEALTH CONDITIONS</b>				
SCD	Number of regional resource centres established	Survey	5 years	Neonates
	Number of schools oriented in special educational needs and providing resources	Reports from regional centres	Yearly	Schools
	Number of genetic counsellors trained			HWs
	Number of genetic counselling session held			All
	Number of persons tested for SCD			
	Number of persons confirmed with SCD: HbSS, HbSC, or HbS plus $\beta$ -thalassemia			
	Number of people who have HbSS on adequate maintenance therapy			
	Number of people who have HbSS admitted in crisis			
HIV/TB	Number tested for HIV and TB at therapeutic feeding centres and PHUs			TBD
	Number tested for HIV at ANC	TBD	TBD	PW
	Number tested for HIV at PHU	TBD	TBD	Adults

Strategy	Indicator	Collection Tool	Frequency	Population Group
<b>OBJECTIVE 3: IMPROVE REPRODUCTIVE HEALTH AND DELIVERY CARE</b>				
FP	Demand satisfied with modern methods	Population-based health surveys	5 years	WRA
	Number confidentially counselled	Reports from adolescent friendly services	Yearly	Adolescents
Delayed Cord Clamping	Number of policies, guidelines, and implementation plans that include delayed cord clamping	Reports	Yearly	Neonates
	Number trained in delayed cord clamping	TBD	TBD	HWs
Maternal Haemorrhage	Number of blood banks established per district	TBD	TBD	PW
	Donated blood units screened for HIV, hepatitis, and syphilis in a quality assured manner	TBD	TBD	PW
Delivery	Percentage attended by a skilled birth attendant	Reproductive and Child Health survey/HMIS	Yearly/ monthly	PW
<b>OBJECTIVE 4: IMPROVE MICRONUTRIENT INTAKE AND DIET QUALITY</b>				
Food Production	Percentage who consumed iron-rich foods in the last 24 hours	DHS	5 years	Ages 6–23 months
	Percentage who consumed vitamin-A rich foods in the last 24 hours	DHS	5 years	Ages 6–23 months
	Number of policies, guidelines, and implementation plans that include food safety	Reports	Yearly	All ages
Maternal, Infant, and Young Child Feeding	Percentage being fed appropriate complementary foods (diversity, frequency, and on-demand)	SMART survey	Every 2–5 years	Ages 6–9 months
	Women's minimum dietary diversity (4 of 7 food groups in 24-hour recall)	DHS	5 years	Lactating women
IFA Intake	Percentage who take for 90+ days	DHS	5 years	PW
Vitamin A Intake	Percentage fully supplemented	Post-event coverage survey/LQAS	Yearly	Ages 6–59 months

Strategy	Indicator	Collection Tool	Frequency	Population Group
<b>OBJECTIVE 5: IMPROVE EDUCATION OF GIRLS AND WOMEN</b>				
Education	Percentage of girls who completed grade 6 (primary level)	DHS	5 years	Adolescent girls
<b>OBJECTIVE 6: IMPROVE INTEGRATED PLATFORMS TO DELIVER ANAEMIA INTERVENTIONS</b>				
Platform	Percentage making at least four ANC visits and receiving appropriate care: IFA, ITPp, deworming	RCH survey/HMIS	Monthly/yearly	PW
	Percentage of PHUs implementing the 6MlyCP	Director of Food and Nutrition reports	Annual	PHU
	Percentage of districts that have functional MSGs	TBD	TBD	Districts
	Number of active CHWs	Monitoring report	Monthly/yearly	CHWs
	Proportion of HWs enrolled in in-service training	TBD	TBD	HWs
Operationalising the Anaemia Strategy	Number of NAWG meetings held	TBD	TBD	NA
	Number of IEC materials related to anaemia developed	TBD	TBD	NA
	Number of IEC materials related to anaemia updated	TBD	TBD	NA
	Number annual strategy review meetings held at national level	TBD	TBD	NA
	Number of annual strategy review meetings held at district level	TBD	TBD	NA

Community health worker (CHW); Demographic Health Survey (DHS); Health Management Information System (HMIS), information, education, and communication (IEC); Malaria Indicator Survey (MIS); mother support group (MSG); Multiple Indicator Cluster Survey (MICS); National Anaemia Working Group (NAWG); not applicable (NA); reproductive and child Health (RCH); peripheral health unit (PHU); PMTCT; standardized monitoring and assessment of relief and transitions (SMART); to be determined (TBD); women of reproductive age (WRA).

## ANNEX 2: COMPENDIUM OF ANAEMIA-RELATED POLICIES AND STRATEGIES

**The National Food and Nutrition Security Policy and Implementation Plan 2012–2016** acknowledges the multifaceted nature of, and multi-sectoral action needed to address undernutrition. Its goal is to improve health, social, and economic well-being and its objective is to improve nutritional status, especially of infants, young children, and PLW. Its strategies relevant to anaemia include IFA compliance among PW; mass and routine distribution of vitamin A to children ages 6–59 months and deworming medication to children ages 12–59-months; and dietary diversification, fortification of widely consumed foods, and biofortification research. It reflects the need for different stakeholders and sectors to collaborate to address the nutrition, infection, and hygiene nexus. Relevant ministries, local governments, and others identified priorities to address the underlying causes of undernutrition. Key interventions include breastfeeding and complementary feeding, maternal nutrition, micronutrient intake, diarrhoea and parasite control, deworming, acute malnutrition treatment, food security, the nutrition of people living with HIV/AIDS and TB, and non-communicable diseases. By 2016, it aimed to reduce anaemia to 51 percent of CU5 and 36 percent of WRA through supplementation, and to 32 percent of PW through IPTp. These outstanding targets inspire this strategy.

The **Reproductive, Maternal, Newborn, and Child Health Strategy 2017–2021** will be an update of the **Reproductive, Newborn, and Child Health Strategy** and the **Reproductive, Newborn, and Child Health Policy 2011–2015** which highlights FP, focused antenatal care, emergency obstetric and neonatal care including skilled birth attendance and essential newborn care, IMCI and integrated community case management of childhood illnesses, immunizations, nutrition, prevention of teenage pregnancy, and WASH. The strategy focuses on strengthening health systems for provision of services, improving quality of services and service delivery, strengthening community systems, and enhancing research, monitoring, and evaluation for delivery of services.

The National Malaria Control Programme manages all malaria control efforts in the country. **The National Malaria Control Policy and Malaria Control Strategic Plan 2016–2020** are the programme's guiding documents. The plan's goal is to reduce malaria morbidity and mortality by at least 40 percent from 2015 levels. Its main anaemia-related objectives involve diagnosis and effective treatment of all malaria cases, providing 100 percent of the population at risk with preventive measures by 2017, and protecting at least 80 percent of PW and CU1 with three doses of IPT by 2020.

The **National Water and Sanitation Policy of 2010** aimed to achieve targets of 74 percent for improved drinking water supply and 66 percent for improved sanitation by 2015. This policy responds to the urgent need for integrated and cross-sectoral approaches to water management and development as well as the provision of safe and adequate water and adequate sanitation facilities. Its objectives focus on water resources management, urban water supply and sewerage, rural water supply, hygiene and sanitation, and the institutional, legal, and regulatory framework.

The **National HIV Prevention Strategy 2011–2015** aimed to strengthen the prevention, and mitigate the impact of, HIV. Its goal was to have zero new HIV infections, zero discrimination, and zero AIDS-related deaths by 2015. It focused on implementation coordinating structures; equal rights and opportunities for orphans and those living with HIV; and reducing incidence, morbidity, and mortality. It provided guidance for implementing prevention and behaviour change programmes, and to increase overall effectiveness and coordination. Key objectives included reducing sexual and mother-to-child transmission, increasing use of counselling and testing services, and integrating sexual and reproductive health and HIV services.

The goal of the **National Leprosy and Tuberculosis Control Strategic Plan and Operations Plan 2016–2020** is to reduce TB incidence by 20 percent by 2020. Related

objectives are to ensure that 70 percent of cases are detected, and to raise the treatment rate to a sustained 85 percent. Its targets include 90 percent treatment success for those diagnosed, and helping 75 percent of affected families with catastrophic costs. HIV testing of TB cases is also included, to detect co-infection and improve coordination of care.

The **National Health Sector Strategic Plan 2010–2015** aimed to improve the access, quality, equity, efficiency, and inclusiveness of health services. The goal was to reduce inequalities and improve health, especially of mothers and children, through strengthening national health systems to enhance health-related outcomes and impact indicators. It focused on improving governance, service delivery, human resources, health financing, medical products and technologies, and health information.

The **Public Health Ordinance of 1960** is being revised and re-released. It covers many important topics, particularly in connection to infectious disease control and safe foodstuffs, which are important to anaemia prevention.

The **National Neglected Tropical Diseases Master Plan 2016–2020** aims to reduce the prevalence of STH and schistosomiasis to under 20 percent and 10 percent, respectively, in SAC (ages 9–14 years) in all districts by 2020.

The **National Community Health Worker Policy 2016–2020** aims to support a functional CHW programme to provide efficient, basic, and high-quality services especially to those

living in hard-to-reach places. The policy builds on previous efforts to standardise and strengthen programmes to provide comprehensive care at the community level.

The **National Health Promotion Strategy 2017–2021** focuses on health promotion, deemed especially important in the wake of the Ebola viral disease crisis. Its objectives are to strengthen and improve health promotion structures such as community groups, which can foster community ownership of health, national health promotion interventions, human resources and capacity for health promotion, raising awareness and mobilizing resources, M&E systems for health promotion, and knowledge sharing and management on health promotion. Some of the interventions for anaemia control will require the health system and citizens to take up new practices, and this health promotion strategy can support uptake.

**Mother-to-Mother Support Groups: A Guidance Document** articulates the latest thinking on the use of MSGs in Sierra Leone for information sharing about caring for PW and the newborn child. This includes exclusive

breastfeeding, immunisation, complementary feeding, hygiene practices, healthy meal preparation, and other healthy practices at home and in the community, including prevention of diseases. These issues are important to anaemia prevention.

The **National Sustainable Agriculture Development Plan 2010–2030** includes the promotion of improved food processing and preservation methods (especially for fruits and vegetables) and the diversification of crops grown and consumed (including promotion of fruits and vegetables in school and home gardens). It implicates flooded rice fields in schistosomiasis transmission and indicates boots and medication as interventions to promote through farmer field schools and agribusiness centres.

The **Ministry of Education, Science, and Technology Education Sector Plan 2014–2018** outlines lessons learnt from the 2007–2015 education sector plan as a basis for actions included in the 2014–2018 plan. Actions focus heavily on gender equity, encouraging student retention, and higher-grade-level completion.





